TD SYNNEX

Data & Analytics Enablement Guide for Resellers

2024

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Purpose & Guidance

Purpose

This is a self-service asset designed to inform TD SYNNEX sellers about data analytics technologies and solutions available through TD SYNNEX.

Guidance

- Click any section in the menu bar on the right to navigate to that section, or
- Use the Interactive Diagram to navigate directly to areas of interest.

Introduction

The crowded analytics and business intelligence (BI) market includes everything from long-standing and large technology players to venture capital-backed startups, and smaller, privately funded software vendors. Vendors of traditional BI platforms have evolved their capabilities to include modern, visual-based data discovery that also includes governance, and more recently, analytics augmented with AI and Gen AI. Newer vendors continue to evolve the capabilities that once focused primarily on agility, by extending them to enable greater governance and scalability, as well as publishing and sharing.

The correct analytics software system can mean the difference between success and failure. It's easy to understand that your customers need an analytics solution to minimize costs and maximize profits. The hard part comes when they are filtering through all the potential options.

The Big Data and Analytics (BDA) software market represents a collection of software tools and applications for data extraction, integration, governance, movement, curation, analysis, and visualization deployed to support or automate a broad range of strategic, operational, and tactical decision making. Based on IDC's BDA taxonomy there are three primary BDA segments:

Analytic Data Management	**A set of tools for the creation and ongoing management of data repositories to support analytic workloads**
BI & Analytics Tools and Platforms	**Prepackaged analytic applications for specific business functions and/or industries**
Performance Management and Analytics Apps	**Prepackaged analytic applications that support decision making and analytics functions and provide business process support, separation of function and time-oriented integrated data from multiple sources**

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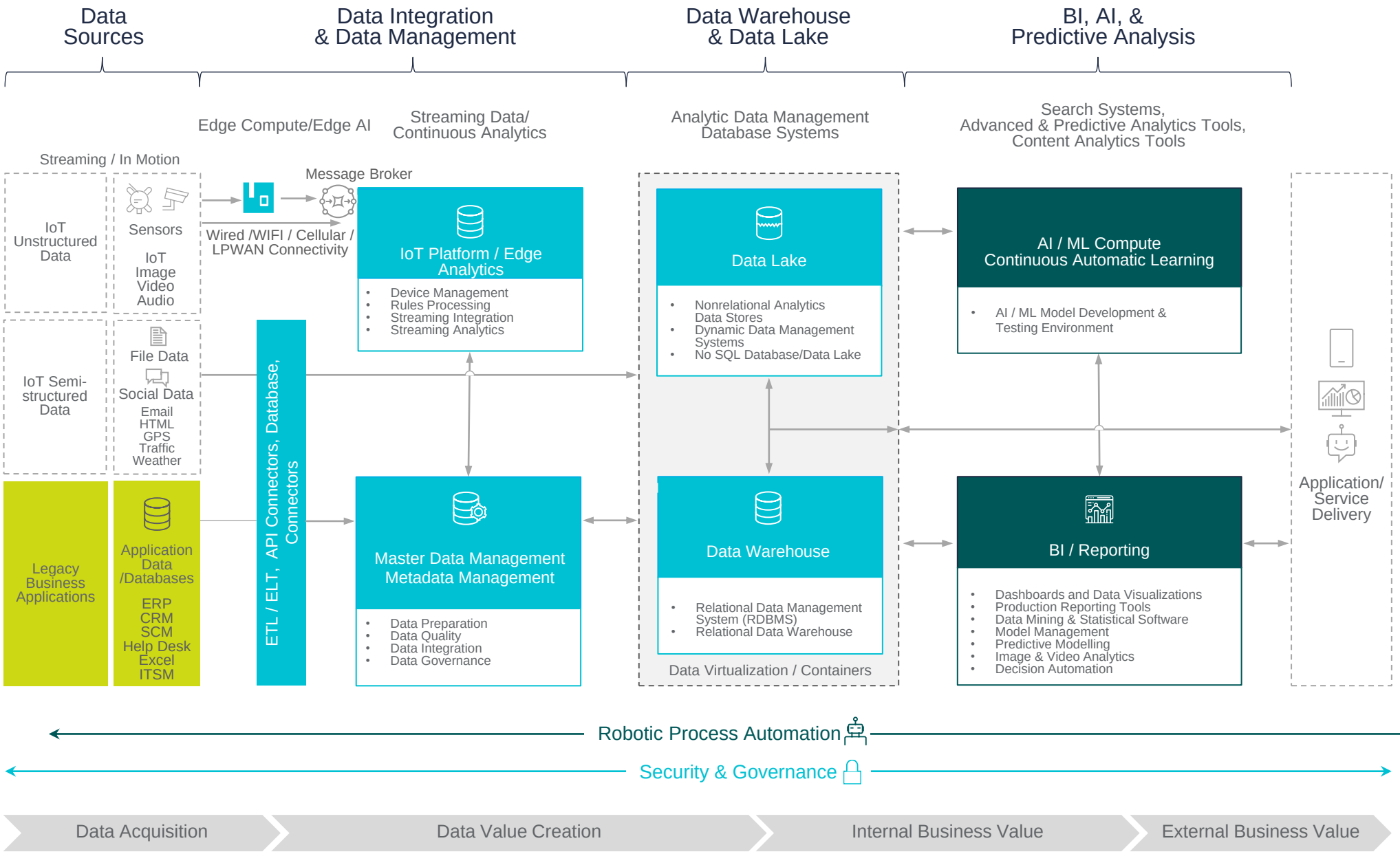

Click on any of the colored items in the diagram for more detail

Key

- Analytic Data Management & Integration Platforms
- BI and Analytics Tools and Platforms
- Performance Management and Analytics Apps

Analytic Data Management & Integration Platforms

IDC defines analytic data management and integration platforms as a sets of tools for the creation and ongoing management of data repositories to support analytic workloads. This segment includes three market subsegments:

- Analytic Data Management
- Analytic Data Integration & Integrity Tools
- Continuous Analytics Tools

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Analytic Data Management

Analytic data management software includes relational database management systems (RDBMSs) and a broad range of nonrelational data stores and dynamic data management environments used to build and maintain data warehouses, data marts, and other analytic data stores. This software market is divided into two segments: Relational data warehouse and Nonrelational analytic data stores.

KEY PRODUCTS	TD SYNNEX VENDORS	PRODUCT NAME	OTHER VENDORS	PRODUCT NAME
• Relational Data Warehouse • Data Marts	**Cloudera:** **Oracle:** **IBM:** **Microsoft:** **AWS:** **Google:**	Cloudera Data Platform Oracle Database DB2; Db2 Warehouse; Informix; Netezza SQL Server; Azure Cosmos DB Redshift BigQuery	Teradata: VMWare Tanzu: SAP: Snowflake:	Teradata Greenplum BW/4HANA; Sybase IQ Snowflake Data Cloud
• Nonrelational Data Stores: Document Oriented Database	**AWS:** **IBM:**	DocumentDB Cloudant	Couchbase: Intersystems: Progress: MongoDB:	Couchbase Server Iris MarkLogic Database MongoDB
• Nonrelational Data Stores: Graph Database	**AWS:** **IBM:**	Neptune DB2 Graph	DataStax: Franz Inc: Neo Technology: Objectivity:	Titan AllegroGraph Neo4j InfiniteGraph
• Nonrational Data Stores Key Accessible Database	**AWS:** **Oracle:** **Google:**	DynamoDB NoSQL DB Bigtable	DataStax:	Distribution of Apache Cassandra
• Scalable Data Collection Managers: Data Lake Lake House	**Cloudera:** **Oracle:** **AWS:** **Microsoft:** **IBM:**	Enterprise Data Hub OAC Data Lake EMR, Lake Formation, S3, Athena, Glue Azure Data Lake Cloud Pak for Data, watsonx.data	Databricks:	Lake House Platform

Analytic Data Integration & Integrity Tools

This software enables the access, blending, movement, and integrity of data among multiple data sources. It is also the conduit that enables users to connect to structured and unstructured data contained within various types of storage platform (relational and nonrelational), both on-premises and in the cloud. The data integration and integrity software market includes bulk data movement software (such as data extraction, transformation, and loading [ETL] tools), data quality software, data access infrastructure, composite data frameworks, master data definition and control software, metadata management software, and self-service data preparation software.

KEY PRODUCTS

- ETL Tools
- Data Quality Software
- Data Access Infrastructure
- Data Frameworks
- Master Data Management
- Control Tools
- Metadata Management
- Data Preparation Software

TD SYNNEX VENDORS	PRODUCT NAME
Alteryx:	Designer, Designer Cloud (Trifacta), Connect
SAS:	SAS Viya:Data Access/ETL, Data Preparation, Data Quality & Information Governance
Software AG:	StreamSets
Hitachi Vantara:	Pentaho Data Integration
IBM:	Data Refinery, InfoSphere Info Server, DataStage, Watson Knowledge Catalog, Data Quality, MDM
Microsoft:	Azure Data Factory, SQL Server Integration Services (SSIS)
Oracle:	Data Integrator, Golden Gate, Big Data (SQL)
Red Hat:	Fuse, Fuse Online, AMQ, Data Virtualization, API Management
TIBCO:	TIBCO Software
AWS:	Glue, EMR
Cloudera:	Cloudera Data Platform

OTHER VENDORS	PRODUCT NAME
Informatica:	PowerCenter, PowerExchange, Data Engineering Integration, Enterprise Data Preparation
SnapLogic:	Intelligent Integration Platform
Altair:	Datawatch Monarch
Precisely:	Spectrum Enterprise Data Integration
Information Builders:	iWay
MongoDB:	Stitch, Connector BI Connector Spark
Synscort:	Integrate
SAP:	Master Data Governance
Tableau:	Tableau Data Prep
Talend:	Data Fabric

Continuous Analytics Tools

Continuous analytics is software used for real-time and near-real-time decision support and decision automation. Continuous analytics is in-motion technology that continuously receives and transforms data in real-time and in micro batches. It is software made up of two primary segments: streaming integration and streaming analytics.

KEY PRODUCTS	TD SYNNEX VENDORS	PRODUCT NAME	OTHER VENDORS	PRODUCT NAME
• Streaming Integration	**Microsoft:**	Azure Data Factory & Event Hubs	Informatica:	PowerCenter Real Time Edition
	AWS:	Kinesis Data Firehose, Data Streams, and MSK	Talend:	Data Integration
	IBM:	STREAMS		
	SAS:	SAS Analytics for IoT		
	Hitachi Vantara:	Pentaho Data Integration		
	Oracle:	Golden Gate		
	Software AG:	Apama		
	Splunk:	Universal Forwarded		
• Streaming Analytics • Edge Analytics	**Microsoft:**	Azure Stream Analytics Streaming Data Platform,	Informatica:	Data Engineering
	AWS:	Kinesis	PTC:	Streaming
	IBM:	STREAMS	Salesforce:	ThingWorx
	SAS:	SAS Event Stream Processing, SAS (Platform)		Thunder
	Hitachi Vantara:	Pentaho		
	Software AG:	StreamSets		
	Cloud Software Group:	Tibco BusinessEvents		
	Oracle:	Event Hub Cloud Service		
	Cloudera:	Cloudera Data Platform -DataFlow		

BI & Analytics Tools & Platforms

Business Intelligence tools utilize a set of methodologies and technologies to prepare, present and help analyze data. Through this process, data is turned into actionable business information which helps decision makers and end users to make more effective data-driven decisions. Based on IDC's Big Data and Analytics Taxonomy, this primary segment includes six subsegments:

- End-User Query, Reporting, & Analysis Tools
- Advanced & Predictive Analytics Tools
- Content Analytics Tools
- Search Systems
- Spatial & Location Analysis Tools
- AI Software Platforms

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End-User Query, Reporting, & Analysis Tools

Business intelligence tools include ad hoc query and multidimensional analysis tools as well as dashboards, data visualization, and production reporting tools. Various query, reporting, and analysis tools are designed for either IT or business users. This category does not include application development tools that may be used for building reports but are not specifically designed for that purpose. Multidimensional analysis tools include both client-side and server-side software that provide a data management environment used for modeling business problems and analyzing business data. Packaged data marts, which are preconfigured software combining data transformation, management, and access in a single package, are also included in this functional market.

KEY PRODUCTS

- Ad-hoc Query and Multidimensional Analysis Tools
- Dashboards
- Data Visualizations
- Production Reporting Tools
- Business Problems Modeling
- Business Data Analysis
- Packaged Data Marts

TD SYNNEX VENDORS	PRODUCT NAME
Microsoft:	PowerBI, SSRS, Excel
Oracle:	Analytics Cloud, OBIEE
AWS:	QuickSight
IBM:	Cognos Analytics, Planning Analytics, Dashboards (Cloud Pak for Data)
SAS:	SAS Visual Analytics, SAS Visual Statistics
Google:	Cloud Datalab
Alteryx:	Auto Insights
BSP Software:	Meta Manager, Integrated Management Suite
Cloud Software Group:	Jaspersoft, Spotfire
Cloudera:	Cloudera Data Platform – Data Visualization
Hitachi Vantara:	Pentaho Business Analytics
MicroStrategy:	Business Intelligence, Hyperintelligence

OTHER VENDORS	PRODUCT NAME
SAP:	Analytics Cloud
Salesforce:	Einstein Analytics
OpenText:	Analytics
Qlik:	Qlik Sense & QlikView
Infor:	Birst
Tableau:	Tableau
Domo:	Domo Software

Advanced & Predictive Analytics Tools

Advanced and predictive analytics tools include data mining and statistical software. These tools use a range of techniques to create, test, and execute statistical models. Some techniques used are machine learning, regression, neural networks, rule induction, and clustering. Advanced and predictive analytics tools and techniques are used to discover relationships in data and make predictions that are hidden, not apparent, or too complex to be extracted using query, reporting, and multidimensional analysis software. Products on the market vary in scope. Some products include their own programming language and algorithms for building models, but other products include scoring engines and model management features that can execute models built using proprietary or open source modeling languages.

KEY PRODUCTS

- Data Mining and Statistical Software
- Machine Learning
- Predictive Analysis
- Decision Automation
- Scoring Engines
- Model Management

TD SYNNEX VENDORS	PRODUCT NAME
Microsoft:	Machine Learning Server
Oracle:	Advanced Analytics
AWS:	Kendra, Personalize, Translate, Forecast, Fraud Detector, Lookout, Guru, SageMaker
IBM:	Watson Studio, Watson Machine learning, Watson OpenScale, SPSS Modeler, ILOG CPLEX (Decision Opt)
SAS:	SAS Viya (Platform), SAS Visual Forecasting, SAS Econometrics, SAS Optimization, SAS IML, SAS Intelligent Decisioning, SAS Model Manager
Alteryx:	Designer, Intelligence Suite, Promote, Machine Learning
Artisight:	Smart Hospital Platform
Automation Anywhere:	Document Automation
Cloud Software Group:	TIBCO Statistica, ibi WebFOCUS
Cloudera:	Cloudera Data Platform (CDP)
Digitate:	ignio™ AIOps
Domino Data Labs:	Enterprise MLOps Platform
Hitachi Vantara:	Pentaho Machine Learning w/ML
HPE:	Ezmeral MLOps
Run.ai	Atlas
Software AG:	Zemantis Predictive Analytics

OTHER VENDORS	PRODUCT NAME
MathWorks:	MATLAB
FICO:	FICO Model Builder
SAP:	Predictive Analytics
RapidMiner:	Predictive Analytics
H2O.ai:	Orchestration

Content Analytics Tools

Content analytics systems provide tools for recognizing, understanding, and extracting value from text or by using similar technologies to generate human readable text. This submarket also includes language analyzers and automated language translation as well as text clustering and categorization tools. This submarket also includes software for recognizing, identifying, and extracting information from audio, voice, and speech data as well as speech identification and recognition plus converting sounds into useful text. Finally, this submarket includes software for recognizing, identifying, and extracting information from images and video, including pattern recognition, objects, colors, and other attributes such as people, faces, cars, and scenery. The Content Analytics Tools in this submarket are typically categorized as Text analytics, Audio and voice/speech recognition and analytics or Image and video analytics tools.

KEY PRODUCTS	TD SYNNEX VENDORS	PRODUCT NAME	OTHER VENDORS	PRODUCT NAME
• Text Analytics	**SAS:**	SAS Visual Text Analytics, SAS Viya (Platform)	SAP HANA:	Text Analytics
			Babel Street:	Rosette
	Oracle:	Data Mining	kCura:	Content Analyst
	IBM:	Watson Discovery, SPSS Modeler	SDL:	TMS
	Automation Anywhere:	IQ Document Automation	Qualtrics:	Text IQ
	Alteryx:	Intelligence Suite	Linguamatics:	I2E
	AWS:	Comprehend, Textract, A2I	Lexalytics:	Semantra
	Microsoft Azure:	Text Analytics	Automated Insights:	Wordsmith
	Google:	Natural Language	Concept Searching:	Compound Term Processing
• Audio & Voice/Speech Recognition & Analytics	**IBM:**	Watson Speech to Text, Watson Text to Speech	Nuance:	Automated Speech Recognition & Natural Language Understanding
	Microsoft:	Windows Speech Recognition	Nexidia:	Analytics & Capture
	Google:	Cloud Speech API	Scribe:	Capture
	AWS:	Lex, Transcribe, Polly		
• Image & Video Analytics	**Artisight:**	(AI-as-a-Service) for Healthcare	Avigilon:	Appearance Searcy
	IBM:	IBM Video Analytics	FBais	Iris+
	Alteryx:	Intelligence Suite	Intelligent Technologies:	iVMD
	Hitachi Vantara:	Lumada Video Insights, Pentaho Machine Learning, Hitachi Content Intelligence	Cognex:	Machine Vision
			Allied Vision:	VIMBA
	HPE:	Media Management & Analytics	Honeywell:	Active Alert
	Axis Communications:	Camera Application Platform	NICE Systems:	Engage
	Cisco:	Pulse Video Analytics		
	Bosch:	Intelligent Video Analytics		
	Chooch:	Computer Vision AI Platform		
	AWS:	Rekognition, Lookout for Vision, Panorama		
	IronYun:	Vaidio AI Enabled Video Analytics		

Search Systems

Search systems include departmental, enterprise, and task-based search and discovery systems as well as cloud-based and personal information access systems. This submarket also includes unified information access tools and systems that combine text analytics, clustering, categorization, and search into a comprehensive information access system. Search Systems also enables a smart and simple way to mine and explore all your unstructured data with powerful text analytics and machine learning capabilities.

With next-generation Search & AI-driven analytics platform, users type questions into a search box like they would with Google or Bing and instantly get precise answers.

KEY PRODUCTS

- Task-Based Search & Discovery
- Unified Information Access
- Comprehensive Information
- Access-Combined Text Analysis, Clustering, Categorization & Search
- Search & Conversational Analytics

TD SYNNEX VENDORS	PRODUCT NAME
IBM:	Watson Discovery, Watson Assistant
Oracle:	Secure Enterprise Search
Microsoft:	Microsoft Search
Google:	Google Earth
AWS:	CloudSearch, OpenSearch, Kendra
Hitachi Vantara:	Waterline/Hitachi Content Intelligence
TIBCO:	Spotfire

OTHER VENDORS	PRODUCT NAME
Smart Logic:	Semaphore
Expert Systems:	Cogito Discover
Northern Light:	SinglePoint
Palantir:	Gotham
Dassault Systèmes:	EXALEAD
OpenText:	Axcelerate, Perceptiv, Decisiv
Lucidworks:	Fusion
Elastic:	Elasticsearch
Sinequa:	Insight Platform
Coveo:	Intelligent Search

Spatial & Location Analysis Tools

Spatial and location analytics is a segment of the broader spatial information management (SIM) software (also called geographic information system [GIS]) and includes the analytic tools associated with SIM software for data entry/conversion (surveying/COGO, aerial photo rectification, remote sensing, GPS, and others), mapping/spatial query, and business analysis.

Location or geographical information system (GIS) tools enable spatial experts to collect, store, analyze and visualize data. Location intelligence experts can use a variety of spatial and business analytical tools to measure optimal locations for operating a business or providing a service.

KEY PRODUCTS
• Spatial Information Management (SIM)
• Geographic Information System (GIS)
• Mapping/Spatial Query Business Analysis

TD SYNNEX VENDORS	PRODUCT NAME
Alteryx:	Designer, Location Intelligence
Autodesk:	Map 3D
Oracle:	Spatial and Graph
Microsoft:	MS Bing Maps
Google:	Google Earth
IBM:	Geospatial Analytics
Chooch:	Visual AI platform

OTHER VENDORS	PRODUCT NAME
Esri:	ArcGIS
Hexagon:	M.App Enterprise
Precisely:	MapInfo

AI Software Platforms

Artificial intelligence (AI) software platforms provide the tools and technologies to analyze, organize, access, and provide advisory services based on a range of structured and unstructured information. These platforms facilitate the development of intelligent, advisory, and cognitive enabled applications. The technology components of AI software platforms include text analytics, rich media analytics (such as audio, video, and image), tagging, searching, machine learning, categorization, clustering, hypothesis generation, question answering, visualization, filtering, alerting, and navigation.

These platforms typically include knowledge representation tools such as knowledge graphs, triple stores, or other types of NoSQL data stores. These platforms also provide for knowledge curation and continuous automatic learning based on tracking past experiences.

When these individual technology components are sold standalone, they are accounted for in other segments of IDC's BDA taxonomy, such as content analytics tools, advanced and predictive analytics, and nonrelational data stores.

Note: *As disruptive as visual-based data discovery has been to traditional BI, a third wave of disruption has emerged in the form of augmented analytics, with machine learning (ML) generating insights on increasingly vast amounts of data. Augmented analytics also includes natural language processing (NLP) as a way of querying data and of generating narratives to explain drivers and graphics. Vendors that have augmented analytics as a differentiator are better able to command premium prices for their products*

KEY PRODUCTS

- Intelligent, Advisory, and Cognitively Enabled Apps
- Machine Learning Categorization
- Knowledge Curation
- Continuous Automatic Learning

TD SYNNEX VENDORS	PRODUCT NAME
IBM:	watsonx.ai plus, watsonx.governance, Cloud Pak for Data
SAS:	SAS Viya (Platform)
Microsoft:	Cognitive Services, Azure Machine Learning Studio
Google:	Cloud Machine Learning Platform, AI Platform
Oracle:	Data Science Cloud Service
AWS:	SageMaker, AWS AI Services
Hitachi Vantara:	Pentaho Machine Learning w/ML Orchestration
Alteryx:	Machine Learning
Automation Anywhere:	Document Automation, Automation Co-Pilot

OTHER VENDORS	PRODUCT NAME
Infosys Nia:	Machine Learning
Amelia:	Chatbot Amelia

Performance Management & Analytics Applications

This software represents prepackaged analytic applications. IDC defines these applications as software that must meet each of the following three conditions:

- Commercial application software that structures and automates a group of tasks pertaining to the review and optimization of business operations or the discovery and development of new business.
- Can function independently of an organization's core transactional applications, yet can be dependent on such applications for data and may send results back to these applications.
- Extracts, transforms, and integrates data from multiple sources (internal or external to the business) supporting a time-based dimension for analysis of past and future trends or accesses such a data store.

Solutions & Products

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Solutions & Products

CATEGORIES	KEY PRODUCTS	TD SYNNEX VENDORS	OTHER VENDORS	
Customer Relationship Analytics	• Customer-Facing Decision-Making Business Processes • Decision Automation	• Oracle: CRM, Sales Cloud (SMB), Netsuite CRM • Microsoft: Dynamics 365 • SAS: CI360	• SAP: CRM • Salesforce • Adobe: Experience Cloud • Verint	• Pega CRM • Amdocs • Sage CRM • SugarCRM
Supply Chain & Product/Asset-Centric Analysis	• Inventory Management • Product Supply Chain-Specific Business Process • Material & Capacity Requirements Planning (MRP) • Bill of Material (BOM) • Work Order Generation & Reporting • Shop Floor Control • Quality Control • Manufacturing Execution System (MES)	• IBM: Sterling B2B, Sterling OMS, Maximo, Tririga, Watson AI • SAS: SAS Intelligent Planning, SAS Performance Management, SAS Intelligent Inventory Management, SAS Intelligent Pricing • Oracle: Supply Chain Analytics • Hitachi Vantara: Lumada Maintenance Insights, Lumada Manufacturing Insights	• Dassault Systèmes: DELMIAWorks Manufacturing ERP • IFS: Supply Chain Management • Infor: Supply Chain Management	• Blue Yonder: Luminate Planning • Manhattan Associates: Manhattan Active Supply Chain • Shoptech: Industrial Software
Services Operations Analytics	• Decision Making & Analytics • Claim Processes (Insurance) • Admission/Discharge & Transfer (Patients) • Student Retention & Recruitment (Higher Education) • Energy Trading • Decision Support for Real Estate, Legal Services, Banking, Government, Social Services, and Transportation	• SAS: SAS Viya • Hitachi Vantara: Lumada Suite • Automation Anywhere: RPA for HC Claims	• Hubspot • Apto • Fendahl: Fusion CTRM/ETRM • Blue: Experience Management Platform	• OpenText: Vertica • FICO: Debt Management • Oracle Health: Cerner Millennium
Workforce Analytics	• Human Capital Management • Employee's Corporate Relationship/HR • Contingent Labor, Contractors, & Consultants • Supplier & Customer Employee HR	• Oracle: Human Resource Analytics	• SAP: Success Factor • UKG: Workforce Management • PeopleFluent	• SumTotal: SumTotal Workforce Management • Workday: HCM Reporting & Analytics
Enterprise Performance Management	• Budget, Planning & Forecasting • Internal Financial Policies Management • External Financial Reporting Compliance • Financial Risk Assessment & Analysis • Profitability Measurement & Reporting • Risk & Financial Management • Risk Adjusted Performance Management	• IBM: Planning Analytics with Watson • Oracle: Enterprise Planning & Budget Cloud Service, Hyperion Financial Close Suite • SAS: Model Risk Management	• SAP: Analytics Cloud • Host Analytics • Workday: Adaptive Insights • BOARD International • Tagetik	• Prophix • Workiva • Anaplan • Axiom • Insightsoftware: Hubble
Production Planning	• Collaborative Forecast Automation • Manufacturing Process Optimization • Supply Planning • Demand Planning • Production Planning • Demand Expectation • Multi-site Spanning	• IBM: Sterling Order Management System • Oracle: Advanced Planning Command Center, Advanced Supply Chain Planning, Collaborative Planning & Demand Management • SAS: SAS Intelligent Planning; SAS Intelligent Inventory Management	• SAP: Supply Chain Planning and Collaboration • Aspen Technology: Aspen Collaborative Demand Manager & Supply Chain Planner	

Analytics in Industries

Analytics, AI and machine learning technologies are being used across vertical industries to help drive more intelligent business decisions. Vertical industry leaders today leverage analytics and machine learning across many areas of business, from facilitating customer service interactions to managing logistics to analyzing medical records.

Data and analytics are already shaking up multiple vertical industries, and the effects will only become more pronounced as adoption reaches critical mass. An even bigger wave of change is looming on the horizon as deep learning reaches maturity, giving machines unprecedented capabilities to think, problem-solve, and understand language. Industry organizations that are able to harness these capabilities effectively will be able to create significant value and differentiate themselves, while others will find themselves increasingly at a disadvantage.

Healthcare

Manufacturing

Retail

Smart Buildings & Smart Enterprise

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Healthcare Analytics

Industry Context

- Artificial intelligence could save the U.S. up to $360 billion annually if adopted more widely in healthcare (NBER)
- The FDA authorizations of AI and machine-learning-enabled devices reviewed and authorized increased 1800% from 2015-2022 (FDA)

Key Analytics Use Cases

Use Case	Explanation	Key Technology Categories
Patient Telemonitoring & Fall Prevention	• Healthcare clinicians can use **computer vision, machine learning** and **predictive analytics** to monitor patient movements to predict and prevent costly adverse events before they happen to improve patient outcomes and quality reporting measures.	**Business Intelligence & Analytics Tools & Platforms** • Advanced & Predictive Analytics Tools • AI Software Platforms
Automated Claims Processing for Healthcare	• Robotic Process Automation uses **computer vision, natural language processing** and **machine learning** to learn from human behavior of repetitive tasks to automatically read and process complex claims documents to improve accuracy and speed up insurance claims submission.	**Business Intelligence & Analytics Tools & Platforms** • Advanced & Predictive Analytics Tools • AI Software Platforms
Patient Readmissions Prevention	• Use analytics process automation and predictive analytics in healthcare to identify patients at high risk of hospital readmission. Forecasting which patients may be readmitted after a hospital stay allows clinicians to adjust their post-hospitalization treatment plans. Reducing readmissions saves money, preserves healthcare resources for new patients and improves patient outcomes.	**Analytic Data Management & Integration Platforms** • Analytic Data Integration & Integrity Tools **Business Intelligence & Analytics Tools & Platforms** • Analytics Process Automation • Advanced Predictive & Prescriptive Analytics • Spatial Location Analytics Tools
AI Assisted Dermatology	• AI-enabled computer vision systems can be used to accurately analyze images of lesions for melanoma diagnoses. The technology can be used for accurate disease classification and early diagnoses.	**Business Intelligence & Analytics Tools & Platforms** • Advanced Predictive Automation • Machine Learning • Image & Video Analytics

Manufacturing Analytics

Industry Context

- The manufacturing analytics market is projected to register a CAGR of 24% during the forecast period (2021 - 2026). The application of analytics in various segments of the manufacturing process is increasing the demand for the manufacturing analytics market thereby minimize operational cost and streamlining the overall supply-chain logistics. (Mordor Intelligence)
- According to a recent study conducted by the Boston Consulting Group (BCG) and the World Economic Forum, nearly 75 percent of surveyed manufacturing executives consider advanced analytics to be critical for success and more important today than three years ago. (BCG)
- A recent report conducted by ABI Research claims that manufacturers will spend $20 billion to transform and support data analytics by 2026. (ABI)

Key Analytics Use Cases

Use Case	Explanation	Key Technology Categories
Predictive Maintenance	• Predictive maintenance uses data from sensors and smart machines to monitor and predict machine health and safety and allow scheduled maintenance when needed. This reduces unscheduled downtime and improves Overall Equipment Effectiveness (OEE), avoiding lost production and revenues.	**Business Intelligence & Analytics Tools & Platforms** • Predictive Modeling & Model Management • Advanced & Predictive Analytics Tools • Machine Learning
AI-based Visual Inspection	• AI-based visual inspection involves using machine learning to automatically verify product quality by analyzing unstructured image and video data. AI and computer vision technologies enable manufacturers to automate product defect detection, saving time and money while improving quality control.	**Analytic Data Integration & Integrity Tools** • Continuous Analytics Tools & Edge Analytics **Business Intelligence & Analytics Tools & Platforms** • Machine Learning • Image & Video Analytics Tools
Video Analytics for Worker Safety	• **AI** and **computer vision** can analyze live video feeds to detect when workers are in a potentially dangerous situation. Workplace safety is important not only for ensuring the health and wellness of employees, but also because on-the-job injuries and accidents can be very expensive to deal with and reduces overall productivity.	**Analytic Data Integration & Integrity Tools** • Continuous Analytics Tools & Edge Analytics **Business Intelligence & Analytics Tools & Platforms** • Image & Video Analytics Tools • Spatial & Location Analytics Tools

Retail Analytics

Industry Context

- The retail analytics market was valued at USD 5.29 billion in 2019 and is expected to reach USD 15.03 billion by 2025, at a CAGR of 19% over the forecast period 2020 - 2025 (Mordor Intelligence).
- The retail industry's investment in AI application software is expected to grow at nearly a 40% CAGR over the next five years (IDC)
- Nearly a third of retailers (30%) said improving operational efficiency is their top business objective. (IDC)

Key Analytics Use Cases

Use Case	Explanation	Key Technology Categories
In-Store Analytics	• In-store analytics solutions can be used to process data from sensors, trackers, cameras and other IoT devices in brick-and-mortar stores. Machine learning and analytics can provide deep insights for better product placement , peak traffic times, most popular areas within the store to allocate sales associates.	**Analytics Data Management & Integration Platforms**) • Streaming Integration / Edge Analytics **Business Intelligence & Analytics Tools & Platforms** • Machine Learning • Image & Video Analytics Tools • AI Software Platforms
Personalized shopping experiences	• **Customer relationship analytic applications** generate product recommendations tailored to a specific customer based on their purchase history, preferences, and context. This enables Marketers to create smart, efficient personalized customer journeys with relevant web content in real-time, optimizing the customer's experience and conversion rates to sales.	**Performance Management & Analytics Applications** • Customer Relationship Analytics • Search Systems / Text-based Search & Discovery • Continuous Automatic Learning / ML • Dashboard / Data Visualization
Supply chain analytics	• **Demand planning and supply chain analytics** software enables companies to automate and accelerate demand planning insights across their supply chain, understanding demand signals and providing recommendations for balanced, profitable plans across all channels, categories, and customers. This results in greater forecast accuracy using a variety of analytics methodologies, including AI and Machine Learning.	**Supply Chain & Product / Asset-Centric Analytics** • Artificial intelligence (AI) and performance management and analytics applications • Advanced & Predictive Analytics Tools • Intelligent Planning

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Public Sector/Smart Cities Analytics

Industry Context

- A “smart city” is an urban area that uses emerging technologies such as Internet of Things (IoT), Artificial Intelligence (AI), big data, cloud storage technology, and data analytics to collect and analyze utilization data and use insights gained from them to manage assets, resources, and services efficiently.
- By 2024, because of ongoing staff shortages, 60% of regional and local governments will realign budgets and job categories to increase investment in cloud and managed services. (IDC FutureScape)
- The number of IoT smart buildings' active connections was expected to increase through the years. It was 15.99 million connections in 2019 and is expected to reach 154.06 million by 2025. (Mordor Intelligence)

Key Analytics Use Cases

Use Case	Explanation	Key Technology Categories
Limiting the spread of COVID-19	• Experts have found uses for **business intelligence and analytics tools and platforms** for various purposes, such as contact tracing. • **Video analytics** are being used to measure pedestrian traffic and evaluate how populations are complying with social distancing and mask-wearing • **Artificial intelligence and machine learning models** allow researchers to virtually test potential vaccines and predict which therapies might work best across populations. The coming together of artificial Intelligence and data analytics platforms has improved the ability to dig through years of data to identify possible drugs already approved by the FDA for treating similar viruses	**Business Intelligence & Analytics Tools & Platforms** • Data Visualization • Spatial and Location Analytics Tools • Geographical Information System (GIS) Tools • Mapping / Spatial Query **Artificial Intelligence Software Platform** • Content Analytics Tools • Text & Rich Media Analytics Tools • Machine Learning & Categorization • NoSQL Database / Data Lake • Advanced Predictive Analytics

Maintain and enhance a healthy environment	• **Analytics, BI, IoT, and AI-driven technology** can be used to help maintain healthy environment, advance public transport, and safety. Smart city projects can utilize AI for various applications:
	  • Waste management
	  • Traffic management and efficient public transportation
	  • Energy-efficient buildings
	  • Public surveillance
	  • Flood Prevention
	  • Disaster response & emergency management
	  • E-governance
		Business Intelligence & Analytics Tools & Platforms
		• AI Software Platforms
		• Advanced & Predictive Analytics Tools
		• Artificial Intelligence Software Platforms
		• Natural Language Processing
		• Streaming Data
		• Data Visualization
		• Edge Analytics

TD SYNNEX Solutions & Services

See the table below for a list of key TD SYNNEX analytics solutions and services and how they relate to the primary segments in this document.

Key Analytics Categories	Streaming Data	Data Warehouse & Data Lake	Data Integration & Data Management	BI, AI, & Predictive Analytics
Product Components	Continuous Analytics Tools	• Analytic Data Management • Database Systems	• Big Data Integration • Traditional Data Integration • Data Management	• Search Systems • Advanced and Predictive Analytics Tools • Content Analytics Tools • Spatial & Location Analysis Tools • AI Software Platforms • End-User Query, Reporting, & Analysis Tools
Key TD SYNNEX Solutions	• Streaming integration • Streaming analytics • Edge Analytics SW • Continuous Automatic Learning	• Relational Data Management System (RDBMS) • Relational Data Warehouse • Nonrelational Analytics Data Stores • Dynamic Data Management Systems • NoSQL database/Data Lake	• Extract Transform & Load (ETL) • Data Access Infrastructure • Master Data Management • Metadata Management • Data Preparation Software • Data Quality Software • Data Governance	• Data Mining and Statistical Software • Dashboards and Data Visualization • Production Reporting and Tools • Model Management and Predictive Modeling Software • Image and Video Analytics • Continuous Automatic Learning/ML • Decision Automation Software • Robotic Process Automation (RPA)
TD SYNNEX Services	• Assessments and consultations • Solution scalability and scope • Database development • Data strategy modeling • Data Lake implementation • ETL and data integration • Data migration		• Assessments and consultations • Solution scalability and scope • Data strategy modeling • ETL and data integration • Data migration • Data blending and prep • Data Privacy	• Assessments and consultations • Solution scalability and scope • Report and dashboard development • Health check • RPA ROI analysis and POC

Definitions

Data Containers
Allow multiple application containers to access the same data. These application containers can be created, moved, or destroyed without affecting the original data (e.g., Docker, Kubernetes, OpenShift etc.).

Data Virtualization
Integrates data from disparate sources without copying or moving the data, thus giving users a single virtual layer that spans multiple applications, formats, and physical locations. This means faster, easier access to data. (e.g., Red Hat JBoss Data Virtualization).

Message Broker
Software that enables applications, systems, and services to communicate with each other and exchange information (e.g., Azure IoT Hub, AWS Kinesis).

Nonrelational Analytics Data Stores
The nonrelational analytic data stores market segment is primarily derived from dynamic data management systems. What makes dynamic database systems "dynamic" is that they have no schema and depend on program code to define their content. They are used in cases where the data may not be well defined at the time of ingestion or where the application data requirements change so frequently slowing down the development process. Sometimes called NoSQL database systems because they do not require using SQL, dynamic DBMSs. NoSQL refers to data stores that do not use SQL for queries, and instead use other programming languages and constructs to query the data. Dynamic data management systems that are deployed as nonrelational analytic data stores include: document-oriented database systems, key accessible database systems, graph database management systems, and scalable data collection managers.

Note: Data lakes and data warehouses are both widely used for storing big data, but they are not interchangeable terms. A data lake is a vast pool of raw data, the purpose for which is not yet defined. A data warehouse is a repository for structured, filtered data that has already been processed for a specific purpose. These two types of data storage are often confused and are much more different than they are alike. In fact, the only real similarity between them is their high-level purpose of storing data.

Relational Data Warehouses
Relational data warehouse software market includes (RDBMS) relational database management system software used to manage and process data in support of ad hoc queries and report generation. This software market includes both multidomain enterprise data warehouses and single-domain data marts. A relational database is designed for query and analysis rather than for transaction processing. A relational database data warehouse environment includes an extraction, transportation, transformation, and loading (ETL) solution, an online analytical processing (OLAP) engine, client analysis tools, and other applications that manage the process of gathering data and delivering it to business users.

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Definitions

Edge Analytics
Analyze sensor data in near real-time, and issue commands when anomalies are detected to stop a machine or trigger alerts.

Sensors, smart technology, and other connected devices would not be effective if their entire data analysis process involved sending back information to a central location/cloud and waiting for it to be processed and returned.

Edge Compute/Edge AI
The computational processing of sensor data away from the centralized nodes and close to the logical edge of the network. Edge AI means that AI algorithms are processed locally on an edge device (autonomous vehicles, smart speakers).

Continuous Analytics
In-motion technology that continuously receives and transforms data in real-time and in micro batches. It is software made up of two primary segments: streaming integration and streaming analytics.

Streaming Analytics
The ability to constantly calculate statistical analytics while moving within the stream of data. Streaming Analytics allows management, monitoring, and real-time analytics of live streaming data and typically runs in a container on some type of IoT Edge or IoT Gateway device.

Streaming Analytics on IoT Edge empowers developers to deploy near-real-time analytical intelligence closer to IoT devices so that they can unlock the full value of device-generated data. Streaming Analytics is designed for low latency, resiliency, efficient use of bandwidth, and compliance. Enterprises can now deploy control logic close to the company's operations and complement Big Data analytics done in the cloud.

Streaming Data/In Motion
Data that is continuously generated by different sources. (IoT sensors, log files, video)

Streaming Integration
Is the collection and normalization of data in motion, and continuously moving any enterprise data with real high throughput in a scalable fashion, while at the same time processing, correlating, and analyzing it in-memory in order to gain real value and visibility out of that data.

The output of streaming integration processing may flow into streaming analytics software, an at-rest data warehouse or data lake to continuously analyze data on an event-driven basis to automate detecting and predicting conditions that require further action.

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Definitions

Document Oriented Database

A specific kind of database that works on the principle of dealing with 'documents' rather than strictly defined tables of information. The document-oriented database plays an important role of aggregating data from documents and getting them into a searchable, organized form.

Graph Database

A specialized, single-purpose platform for creating and manipulating graphs. Graphs contain nodes, edges, and properties, all of which are used to represent and store data in a way that relational databases are not equipped to do. Graph analytics is another commonly used term, and it refers specifically to the process of analyzing data in a graph format using data points as nodes and relationships as edges. Graph analytics requires a database that can support graph formats.

Key Accessible Database

The use of keys for a field, or combination of fields, in a database table used to retrieve and sort rows in the table based on certain requirements. Keys are defined to speed up access to data and, in many cases, to create links between different tables.

Scalable Data Collection Managers

These are essentially a huge collection of all the data your company collects about its customers, operations, transactions and more. Think of all of your company's data sources as individual pools of data. You need to hop around to each pool to find the fish you seek. A data lake acts as a scalable data collection manager which will have information flow into it from all of these pools so you can find your fish from one place and find patterns and trends among all the fish.

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On the Web

Learn more about TD SYNNEX's IoT and Analytics offerings at: iot.tdsynnex.com

Contact Us

Reach out to your Analytics and IoT solution consultant, or email us at: data-iot@tdsynnex.com

Additional Resources

Destination AI

Explore TD SYNNEX's solutions, products, and vendors on our Data AI LevelUp resources site. levelup.tdsynnex.com/solutions/data-ai/destinationai

Solutions Catalog

Make repeatable sales in IoT and Analytics a reality. TD SYNNEX's IoT Practice Builder empowers you to accelerate time to market with market-ready solutions aligned to vertical use cases. data-iot@tdsynnex.com

Practice Builder

Start your practice building journey online and on your own time, starting with a simple 5-minute assessment. https://practicebuilder.techdata.com/cloud/path/data-and-iot-fundamentals/