TD SYNNEX

Data & Analytics Enablement Guide for Resellers

2023

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Purpose & Guidance

Purpose

This is a self-service asset designed to inform TD SYNNEX sellers about 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 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, augmented analytics. 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 maximize their cost savings. 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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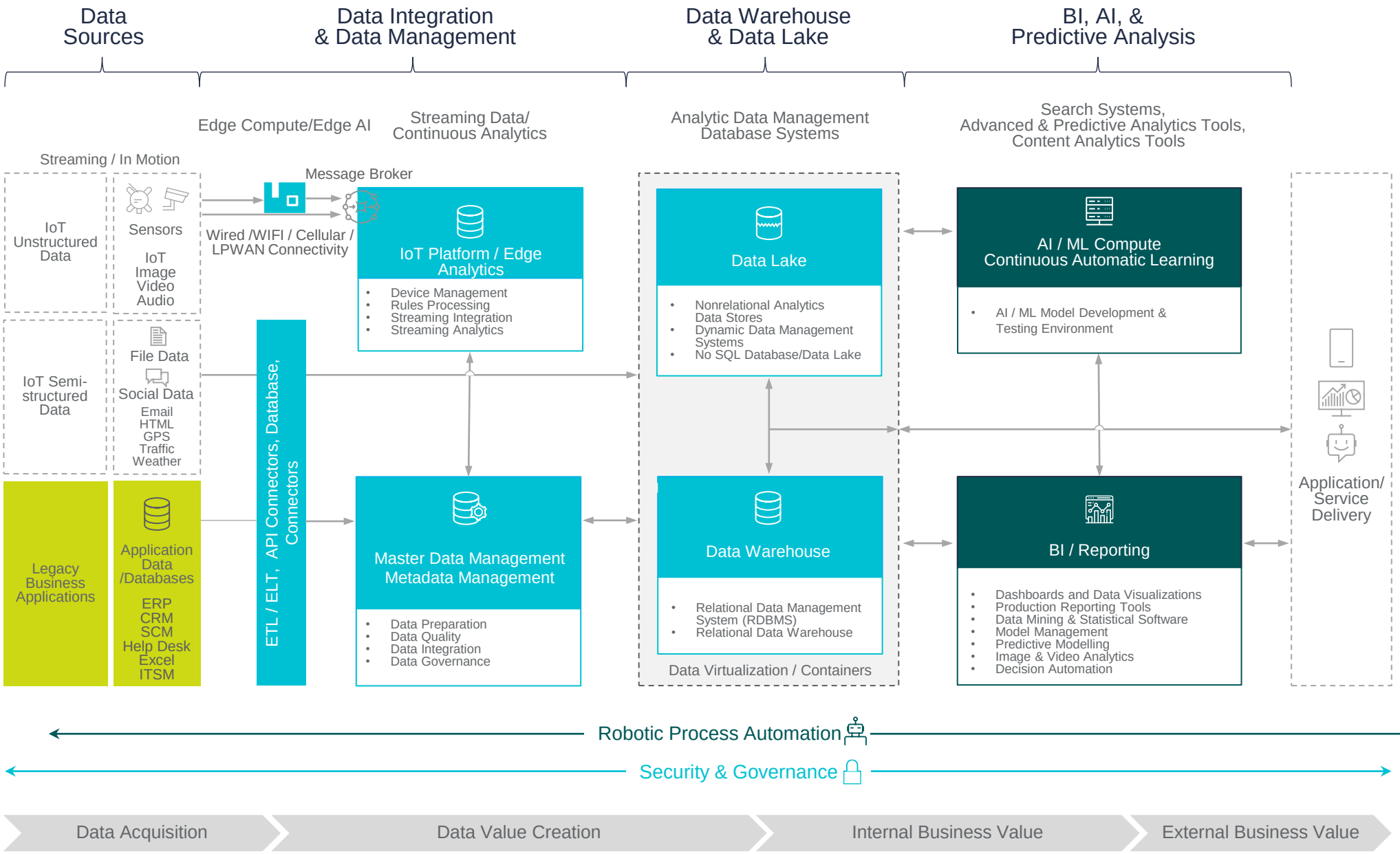


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Click on any of the colored items in the diagram for more detail

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 Warehouses • Data Marts	Cloudera:	Cloudera Data Platform	Teradata	Teradata
	Oracle:	Oracle Database	Pivotal	Greenplum
	IBM:	DB2 Blu Warehouse, Informix, Netezza	SAP:	BW/4HANA, Sybase IQ
	Microsoft:	SQL Server, Azure Synapse DB	Snowflake:	Snowflake Data Cloud
	AWS:	Redshift		
	Google:	BigQuery		
• Dynamic Data Management Platform • Nonrelational Data Stores	Document Oriented Database		Document Oriented Database	
	IBM:	Cloudant	Couchbase:	Couchbase Server
	MongoDB:	MongoDB	MarkLogic:	MarkLogic DataHub
	AWS:	DocumentDB	Info Systems:	Iris
	Graph Database		Graph Database	
	IBM:	DB2 Graph	DataStax:	Tinkerpop
	AWS:	Neptune	Franz Inc:	AllegroGraph
	Key Accessible Database		Neo Technology:	Neo4j
	AWS:	DynamoDB	Objectivity:	InfiniteGraph
	Oracle:	NoSQL DB	Ontotext, Graphdb:	Ontotext
	Google:	Bigtable	Key Accessible Database	
			DataStax:	Distribution of Apache Cassandra
• Data Lake • Lake House	Scalable Data Collection Manager		Scalable Data Collection Manager	
	Cloudera:	Enterprise Data Hub	Databricks:	Lake House Platform
	Oracle:	OAC Data Lake	MapR:	Hadoop
	AWS:	EMR, Lake Formation, S3, Athena, Glue	Pivotal:	Hadoop HD
	Microsoft:	Azure Data Lake		
	IBM:	Cloud Pak for Data		

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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 enable 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, Promote, Connect
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
Redhat:	Fuse, Data Grid, AMQ, Data Virtualization, API Management
MongoDB:	Stitch, Connector for Apache Spark
TIBCO:	TIBCO Software
AWS:	Glue, EMR
Cloudera:	Cloudera Data Platform

OTHER VENDORS	PRODUCT NAME
Informatica:	Power Center, Data Engineering Integration, Enterprise Data Preparation
SAS:	Data Quality
Snaplogic:	Intelligent Integration Platform
Talend:	Data Fabric
Precisely:	Spectrum Enterprise Data Integration
Information Builders:	iWay
Syncsort:	Integrate
SAP:	Master Data Governance
Tableau:	Tableau Data Prep
Trifacta:	Data Fabric

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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		OTHER VENDORS	PRODUCT NAME
Streaming Integration	**IBM:**	STREAMS	Splunk:	Universal Forwarded
	Hitachi Vantara:	Pentaho Data Integration	Informatica:	PowerCenter Real Time Edition
	Microsoft:	Azure Data Factory & Event Hubs	Talend:	Data Integration
	Oracle:	Golden Gate		
	AWS:	Kinesis Data Firehose, Data Streams, and MSK		
	SoftwareAG:	Apama		
Streaming Analytics Edge Analytics	**IBM:**	STREAMS	Informatica.	Data Engineering Streaming
	Microsoft:	Azure Stream Analytics	PTC:	ThingWorx
	Hitachi Vantara:	Streaming Data Platform. Pentaho	Salesforce:	Thunder
	SoftwareAG:	StreamSets	SAS:	Event Stream Processing
	AWS:	Kinesis		
	TIBCO:	StreamBase & Business Events		
	Oracle:	Event Hub Cloud Service		
	Cloudera:	Cloudera Data Platform - DataFlow		

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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

End-user query, reporting, and analysis 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
IBM:	Cognos Analytics with Watson, Planning Analytics with Watson, Dashboards (Cloud Pak for Data)
TD BSP for Cognos:	Meta Manager, Integrated Management Suite
Alteryx:	Auto Insights
Oracle:	Analytics Cloud, OBIEE
Microsoft:	PowerBI, SSRS, Excel
TIBCO:	Spotfire, Jaspersoft
AWS:	QuickSight
Google:	Cloud Datalab
Hitachi Vantara:	Pentaho Business Analytics
MicroStrategy:	Business Intelligence, HyperintelIgence
Cloudera:	Cloudera Data Platform – Data Visualization

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

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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	TD SYNNEX VENDORS	PRODUCT NAME	OTHER VENDORS	PRODUCT NAME
• Data Mining and Statistical Software • Machine Learning • Predictive Analytics • Decision Automation • Scoring Engines • Model Management	Alteryx:	Designer Intelligence Suite, Promote, Machine Learning	SAS:	Analytics & SAS Enterprise Miner
	Anthropic:	Claude	MathWorks:	MATLAB
	Databricks:	Machine Learning	FICO:	FICO Model Builder
	DataRobot:	Automated Machine Learning Platform	SAP:	Predictive Analytics
	Google:	Advanced Analytics	RapidMiner:	Predictive Analytics
	Microsoft:	Machine Learning Server	H2O.ai:	Driverless AI
	Hitachi Vantara:	Pentaho Machine Learning Orchestration, Document Automation (IQ Bot)		
	Automation Anywhere:	360™ AI Ops		
	Digitate:	Ignio AI Ops		
	H2O:	Driverless AI		
	Cloudera:	Cloudera Data Platform (CDP)		
	Domino Data Labs:	Enterprise AI Ops Platform		
	Rimini:	Atlas		
	AWS:	Kendra, Personalize, Translate, Forecast, Fraud Detector, Lookout, Go to Step Model		

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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	Oracle:	Data Mining	SAP (HANA)	Text Analytics
	IBM:	Watson Discovery, SPSS Modeler	Basis Technology	Rosette
	Automation Anywhere:	IQ Bot	lxWriter	Content Analyst
	Alteryx:	Intelligence Suite	SAP	TAIS
	AWS:	Comprehend, Textract API	Clearbridge	CX Analytics
	Microsoft Azure:	Text Analytics	Lingua Technica	LPT
	Google:	Natural Language	Luminoso	Semantic
			SAS:	Text Miner
			Automated Insights	Wordsmith
			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, Analytics & Capture
	Microsoft:	Windows Speech Recognition	Sound.ai	Analytics & Capture
	Google:	Cloud Speech API	SoniTec	Capture
	AWS:	Lex, Transcribe, Polly	MyMedia	Library Direct
			VoiceBase	VoiceAI
• Image & Video Analytics	AiDesignit:	Cognitive-as-a-Service for Healthcare	Avigilon	Appearance Search
	IBM:	IBM Video Analytics	Avert Video Intelligence	smrtX Analytics
	Alteryx:	Intelligence Suite	Deepomatic	Custom ML Enabled Video Analytics
	Hitachi Vantara:	Lumada Video Insights, Pentaho Machine Learning, Hitachi Content Intelligence	Intelligent Technologies	OCMI
	HPE:	Media Management & Analytics	Cognitec	Machine Vision
	Axis Communications:	Camera Application Platform	Allied Vaccari	VIMBA
	Cisco:	Pulse Video Analytics	Honeywell	Net.ee Alert
	Bosch:	Intelligent Video Analytics	NICE Systems	Engage
	Clouduh:	Computer Vision AI Platform		
	AWS:	Rekognition, Lookout for Vision		

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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

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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/GPS/GIS), 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:	ArcInfo
Hexagon:	Smart M.Apps
Pitney Bowes:	MapInfo

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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:	Cloud Pak for Data
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:	RPA IQ BOT

OTHER VENDORS	PRODUCT NAME
Tensor Flow:	Machine Learning
Infosys Nia:	Machine Learning Chatbo
IPSoft:	Amelia

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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 Scoring, Discount Models, Business Processes • Decision Automation	• Oracle CRM Sales Cloud, SMB Netsuite CRM • Microsoft Dynamics 365	• SAP CRM • Salesforce.com • Adobe • SAS • Veeva • Pega CRM • Amdocs • Super CRM • SugarCRM
Supply Chain & Product Asset-Centric Analytics	• Inventory Management • Product Supply Chain-Specific Business Process • Material & Capacity Requirements Planning (MRP) • Bill of Material (BOM) • Work Order Generation & Scheduling • Shop Floor Control • Quality Control • Manufacturing Execution System (MES)	• IBM Sterling, B2B Sterling, OMS, Maximo, Trilogy, Watson AI • Oracle Supply Chain Analytics • Oracle Fusion Cloud Manufacturing Insights, Cloud Manufacturing Insights	• Infor Supply Chain Management • IFS Supply Chain Management • EQMS, Manufacturing ERP • Shapeoko Industrial Software • JDA Enterprise Supply Chain Planning, • Manhattan Associates, Manhattan Active Supply Chain
Services Operations Analytics	• Decision Making & Analytics • Claim Processes Fraud Score • Admission Scheduling & Transfer Patient • Student Retention & Recruitment, Ed, Post Education • Energy Trades, • Decision Support for Real Estate, Legal Services, Banking, Government, Social Services, and Transportation	• Oracle Customer Lifecycle Suite • Automation Anywhere RPA for HR Claims • Micro Focus Vertica	• Pegasus • Xpo • Fusion, CTRM, CPRM • Blue Reference Management Platform • FICO, Debt Management • McKesson Claims Mon • Cerner, Medication
Workforce Analytics	• Human Capital Management • Employee's Corporate Relationship HR • Contingent Labor, Contractors, & Consultants • Supplier & Customer Employee HR	• Oracle Human Resources Analytics	• SAP Success Factor • Kronos, Kronos Workforce Management • UKG, Ultipro • PeopleFluent • SumTotal, SumTotal Workforce Management • Workday, HCM Reporting & Analytics
Enterprise Performance Management	• Budget, Planning & Forecasting, • Internal Financial Planning 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	• SAP Analytics Cloud • Host Analytics • Workday Adaptive Insights • BOARD International • Tagetik • Prophix • Workiva • Anaplan • Adaptly • InsightSoftware, Dublish
Production Planning	• Collaborative Forecast Automation • Manufacturing Process Optimization • Supply Planning, • Detailed Planning • Production Planning, • Detailed Reputation • Multi-site Scheduling	• IBM Watson Order Management System • Oracle Advanced Planning, Command Center, Advanced Supply Chain Planning, Collaborative Planning, & Demand Management	SAP Supply Chain Planning, and Collaboration Aspen Technology - Aspen Collaborative Demand Manager & Supply Chain Planner Advanced Planning Command Center, Advanced Supply Chain Planning, Collaborative Planning & Demand Management

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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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Public Sector/Smart Cities

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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 providers can use computer vision, machine learning and predictive analytics to monitor patient movements in real-time and proactively alert nurses before they begin to unassisted patient exits and quickly respond to emergencies.	**Business Intelligence & Analytics Tools & Platforms** • Advanced & Predictive Analytics Tools • AI Software Platforms
Automated Claims Processing in Healthcare	• Robotic Process Automation uses computer vision, natural language processing and machine learning to learn from human behavior to replicate tasks to automatically read and process multiple claims documents to improve accuracy and speed up claims workflows and adjudication.	**Business Intelligence & Analytics Tools & Platforms** • Advanced & Predictive Analytics Tools • AI Software Platforms
Patient Readmission Prevention	• Use analytics platforms, automation and predictive analytics in healthcare to identify patients at high risk of hospital readmission. Factors like which patients may be treated in a hospital should be used to adjust their post-hospitalization treatment plans. Redirect up-front resources to more proactive healthcare resources for care, patient and improve public AI interactions.	**Analytic Data Management & Integration Platforms** • Analytic Data Integration & Integrate Tools **Business Intelligence & Analytics Tools & Platforms** • Analytics Process Automation • Advanced Predictive & Prescriptive Analytics • Spatial Location Analytics Tools
AI-Assisted Dermatology	• AI-enabled technologies can be used to accurately analyze images of lesions to detect skin diseases. The technology can be used for accurate disease classifications and early diagnoses.	**Business Intelligence & Analytics Tools & Platforms** • Advanced Predictive Analytics • Machine Learning • Image & Video Analytics

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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
Machine Condition Monitoring	• Condition monitoring is a proactive approach that uses real-time data and predictive analytics to monitor and predict machine health and safety through the combination of real-time sensor data that measures vibration and other parameters with state-of-the-art real-time monitoring software	**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 algorithms to automatically verify product quality by analyzing visual data, such as images and videos. AI and computer vision technologies enable manufacturers to accurately and rapidly detect defects, sorting, etc. and thereby 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 be employed to use video feeds to detect when workers are in a potentially dangerous situation. Workplace safety is important not only for ensuring the health and well-being of employees, but it can also result in significant cost savings and benefits, such as reduced insurance premiums, fewer workers' compensation claims, and increased productivity.	**Analytic Data Integration & Integrity Tools** • Continuous Analytics Tools & Edge Analytics **Business Intelligence & Analytics Tools & Platforms** • Image & Video Analytics Tools • Spatial & Location Analytics Tools

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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, cameras and other IoT devices to track customer flows. Such technology and analytics can provide key 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 & Analytics **Business Intelligence & Analytics Tools & Platforms** • Machine Learning • Image & Video Analytics Tools • AI Software Platforms
Personalized shopping experiences	• **Customer relationship analytics applications** can provide product recommendations tailored to a specific customer based on their purchase history, preferences and context.	**Performance Management & Analytics Applications** • Customer Relationship Analytics • Search System / Text-based Search & Discovery • Conversational / Natural Language AI • Dashboard / Data Visualization
Supply chain analytics	• Retail analytics software can be used to provide detailed analytics data on key performance indicators used to track transactions, units per customer, colors of sales, retail stores and many others while empowering sustainable and effective business analytics.	**Supply Chain & Product / Asset-Centric Analytics** • Artificial Intelligence (AI) and performance management and analytics applications • Advanced & Predictive Analytics Tools

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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 people are moving, the social distancing, and mask-wearing. • Artificial intelligence and machine learning models allow researchers to critically test potential cures and predict which therapies might work best across populations. The combination of artificial intelligence and data analytics platforms has improved the ability to track, through years of data, trends in previously thought to already approved by the FDA for treatment in new cases.	**Business Intelligence & Analytics Tools & Platforms** • Data Visualization • Spatial and Location Analytics Tools • Geographical Information System (GIS) Tools • Mapping + Spatial Query **Artificial Intelligence Software Platform** • Cognitive Analytics Tools • Text & Rich Media Analytics Tools • Machine Learning & Categorization • NoSQL Database + Data Lake • Advanced Predictive Analytics

Monitoring and enforcing local laws and regulations	• Analytics, IoT, IoT, and AI-driven technology can be used to help municipal officials deal with various issues, such as public transportation and safety. Some of the projects that are focused on various applications.
	  • Waste management
	  • Traffic management and smart public transportation
	  • Energy-efficient buildings
	  • Public surveillance
	  • Disaster response and emergency management
	  • Export value
		Business Intelligence & Analytics Tools & Platforms
		• AI Software Platforms
		• Advanced & Predictive Analytics Tools
		• Artificial Intelligence Software Platforms
		• Natural Language Processing
		• Streaming Data
		• Data Visualization

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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 Categories	Cache/In-mem Analytics Tools	• Analytic Data Management • Database Systems	• Big Data Integration • Traditional Data Integration • Data Management	• Search Systems • Advanced and Predictive Analytics Tools • Cache/In-mem Analytics Tools • Spatial & Location Analysis Tools • AI Software Platforms • Ad-hoc Query, Reporting & Analysis Tools
Key TD SYNNEX Solutions	• Streaming Integration • Streaming Analytics • Edge Analytics SW • Cache/In-mem Advanced Analytics	• Relational Data Management Systems (RDBMS) • Relational Data Warehouse • Semi-relational Analytic 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 • Enterprise Reporting and Tools • Model Management and Predictive Modeling Software • Image and Video Analytics • Cognitive and Machine Learning/AI • Decision Automation Software • Robotic Process Automation (RPA)
TD SYNNEX Services	• Assessments and custom solutions • Solution scalability and scope • Data Science development • Data strategy and roadmaps • Data Lake implementation • ETL and data integration • Data Migration		• Assessments and custom solutions • Solution scalability and scope • Data strategy and roadmaps • ETL and data integration • Data Migration • Data blending and prep • Data Pictures	• Assessments and custom solutions • Solution scalability and scope • Report and dashboard development • Health checks • RPA ROI analysis and POC

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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.

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.

Message Broker

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

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).

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, etc.).

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

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.

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.

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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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

Explore TD SYNNEX's solutions, products, and vendors on our Data AI LevelUp resources site.
https://www.levelup.tdsynnex.com/solutions/data-iot.aslx

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/

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