



BITVORE

FACTSET

) SEE THE ADVANTAGE



BITVORE CELLENUS FOR FACTSET

BITVORE OVERVIEW

Managing risk and opportunity associated with doing business with other companies is essential to Financial Service organizations, as well as many other industries that deal in business to business interactions. Having real-time, relevant and insightful data about these businesses is important in driving decisions whether to do business with them, lend them money or even invest in them. Bitvore provides unprecedented business insights from unstructured data. Our products are deployed in over seventy of the world's largest financial institutions, allowing them to make faster and more effective decisions so they outperform the competition.

Our flagship product, Bitvore Cellenus is a groundbreaking AI-powered platform that delivers leading indicators of business performance for companies, industries, markets and municipal obligors. Bitvore Cellenus ingests massive amounts of unstructured data (including news, press releases, SEC filings/proxy statements, earnings call transcripts and more) and uses advanced NLP and machine learning to provide material events, trended sentiment, growth and risk scoring, as well as comparative/predictive analytics to drive better business outcomes. Consumable through file downloads and a comprehensive API, Bitvore Cellenus provides customers with the "crystal ball" needed to identify emerging risk and opportunity.

Bitvore is a FactSet partner with a re-seller agreement in place and an entry in the Open:FactSet | Marketplace. We are currently working with FactSet on an integration of a subset of Bitvore Cellenus data into the FactSet Workstation that will include business signal and sentiment change data. Bitvore and FactSet are also collaborating on sentiment and key phrase analysis of earnings call transcripts.

BITVORE CELLENUS USE CASES



Global Commercial Bank

- Surveil companies with loans
- Reduce need for manual research

Headcount Reduction / Risk Surveillance



Top 5 Asset Manager

- Surveil Fixed Income and Equity holdings
- Consolidate data vendors
- Reduce manual research
- Find trending themes for Market Risk

Risk Surveillance / Cost Reduction



Big 4 Consultancy

- Research prospective clients
- Track competitors
- Insights for consultants to engagement clients

Lead Generation / Research Tool



Trading Platform

- Value-add research data for Fixed Income and Equity trading
- Differentiator in the retail brokerage trading market

Research Tool

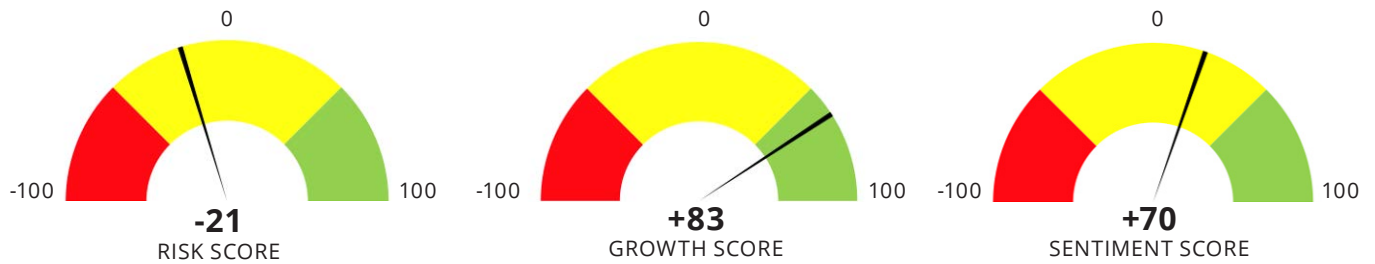
BITVORE BUSINESS SIGNALS IDENTIFY MATERIAL BUSINESS EVENTS

Bitvore uses advanced machine learning on over 60K diverse sources of unstructured data (including news, press releases, SEC filings/proxy statements, earnings call transcripts and more) to identify business signals. Business signals identify material business events that can affect the bottom line of a company. Our business signal hierarchy is shown below.

BITVORE'S COMPREHENSIVE SIGNAL SCHEMA

Signal	Subsignal	Signal	Subsignal
Agreements & Relationships	Strategic Alliance	Facilities & Footprint	Closing
	Supply Chain		New Headquarters
	Bid Proposal		Location Expansion
	Joint Venture		Renovation Update
	Tentative Agreement		Market Expansion
Asset Transactions (partial M&As)	Sale / Purchase of Intangible Assets	Financial Fillings	8K
	Sale / Purchase of Tangible Assets		10K
	Spinoff Rumor		S1
	Spinoff Announcement		Proxy Statements
	Spinoff Complete		
Bankruptcy	Chapter 11: Initial Filing	Financial Health	Company Strategy
	Chapter 7: Initial Filing		Price Increase / Decrease
	Bankruptcy General News		Earnings / Financial Results
	Discharge Completion		Investment Risks
Business Risk	Disaster	Labor	Hiring
	Geopolitical Unrest		Workforce Reduction
	Changes in Regulations		Wage Increase
	Activism		Wage Decrease
	Sanction		Union Issue
	Trade Agreements		Strikes
	Operational Risk	Relocation of Workforce	
	Reputational Risk		
	Loss of Accreditation		
	Competitive Risks		
	Slumping Economy		
Risk Mitigation: Improvement			
Credit Ratings	Upgrade	Legal Issue	Sentiments
	Downgrade		Investigations
	Unchanged		Lawsuit
	Speculations to Ratings		Class Action
			Regulatory Investigation
Debt Transactions	Company Debt: New Issue		Regulatory Fines
	Company Debt: Updates		
	Company Debt: Default	Merger & Acquisitions	Acquisition Rumor
	ST/LT Loans: New		Acquisition Announcement
ST/LT Loans: Defaults	Acquisition Complete		
	Acquisition Failure		
Equity Transactions	Public Offering		Tender Offer
	Executive Trading	Products & Services	Product Planning
	Delisting		Product Testing
	IPO Announcement		Product Approval
	IPO Closure		Product Denial
	IPO Withdrawn		New Product
	Private Placement		Existing Product: New Market
	Venture Funding		Product Pricing
Other Corporate Actions	Product Recall		
	Product Updates		
Executive Changes	Board of Directors	Recognitions & Philanthropy	Award
	C-level Changes		Ranking
	Company Executive		Certification
	Executive Compensation		Donations/Fundraisers
	Grants		
		Patents	

BITVORE'S SENTIMENT, GROWTH AND RISK SCORES PROVIDE LEADING INDICATORS OF BUSINESS PERFORMANCE



As a leader in providing business critical insights from unstructured data, Bitvore has created a new way to help businesses identify emerging opportunity and risk. With our proprietary company, industry and market sentiment analysis, users can better understand how material business events are being perceived. With Bitvore Cellenus sentiment scoring, portfolio managers, credit risk underwriters, and other analysts can assess reputation, branding, and more. Bitvore Cellenus also uses sentiment analysis on specific business signals associated with growth and risk to define Growth and Risk sentiment scores by company.

Bitvore's proprietary sentiment analysis uses AI automation to understand and contextualize massive amounts of data. Built on machine learning and natural language processing (NLP) algorithms, it can determine the perception of a material business event derived from unstructured data without requiring an analyst to read the article themselves. Data mining techniques are used to extract perception from text based on word choice, context, and more. Additional techniques used include semantic orientation, linear sequencing, and deep learning. Utilizing this approach, users can determine whether a piece appears to be positive or negative, what the subject matter is, and the conveyed message.

HOW BITVORE DERIVES SENTIMENT

Bitvore uses a form of sentiment analysis that involves a three-step process that breaks down content records at a sentence-by-sentence level. This technique encompasses the following:

- Sentence-by-sentence analysis
- Article sentiment calculation
- Entity-level calculation

Sentences are parsed into components that classify words or phrases as modifiers, nouns, or verbs. Proprietary algorithms are then used to determine whether subject matter is positive or negative. Semantic

orientation is used to assess modifier polarity and directionality. Linear sequencing then derives overall sentence direction based on the sequencing of words. Using semi-supervised deep learning with a lexicon of over 25,000 financial terms and a training set of more than 10 million pieces of content, relative magnitude of the sentence sentiment is assigned. Sentence level sentiment is then rolled up to the content record level and then company, industry and market level sentiment is derived from all content records on a rolling 90-day window.

	<i>Modifier</i>		<i>Aspect / Noun</i>					<i>Modifier</i>			
	Despite the challenging headwinds, ACME was able to lower operating expenses.										
Polarity	-	N	-	-	N	N	+	N	-	N	-
Direction	Negative-reverse				Positive			N	down	Positive if down	
Overall	Positive										

INSIGHTS INTO EMERGING THEMES THAT AFFECT COMPANIES AND MARKETS

Bitvore Cellenus provides insights into business-related themes and topics. Within each theme we provide trending news and insights using keyword extraction and measurement of magnitude over time. Bitvore Cellenus is constantly updated with emerging themes of interest.

BITVORE CELLENUS THEMATIC COVERAGE

	1 - ECONOMIC	2 - POLITICAL	3 - FINANCIAL	4 - BUSINESS	5 - SOCIAL/TECH
THEMES	<ul style="list-style-type: none"> • Inverted Yield Curve • Fed Interest Rate Cuts • Minimum Wage Increase • Recession/Inflation • Traffis/Trade Wars • Sovereign Credit Ratings • BRIC/Emerging Markets • Unemployment Trends • Housing Prices 	<ul style="list-style-type: none"> • Brexit • EU Elections • US Elections • North Korean Crisis • Middle East Tensions • US Immigration • New Treaties/ Conventions • New Entrants/ Leavers to Unions 	<ul style="list-style-type: none"> • Credit Spreads • LIBOR vs. SOFR • Currency Crisis • Treasury/ Mortgage Interest Rates • Debt Crisis • Sub-prime Lending 	<ul style="list-style-type: none"> • Data Privacy – GDPR • Data Privacy – CCPA • New Regulations • New Tax Rules • Copyright and Patent Infringements • Trumps- Volfefe Index • Workforce Reskilling • Cybersecurity/ Fraud • Gender Pay Gap • Broad Diversity 	<ul style="list-style-type: none"> • US Gun Violence • Freedom of Speech • Millennial Trends- Portfolio Incomes • Strikes & Protests • AI, ML and IoT • Blockchain/ Cryptocurrencies • 5G • Climate Change • War/ Conflict • Natural Disasters & Accidents • Terrorism • Epidemics

Key: **In Beta** | **Ready in Q2** | Ready in Q3/Q4



BITVORE IS CONSTANTLY INNOVATING TO PROVIDE NEW BUSINESS INSIGHTS

2020 FOCUS AREAS

- New Data: Funding data, UCC Filings, Hiring Data, WARNS
- Earnings Call Transcript AI Analysis
- Additional Thematic Content
- Implement ESG Signals
- Market/Industry Tagging
- Filings – Signals and Sentiment





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