



**BITVORE CELLENUS**

# 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 Microsoft Partner and is Co-sell Ready.

## 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**

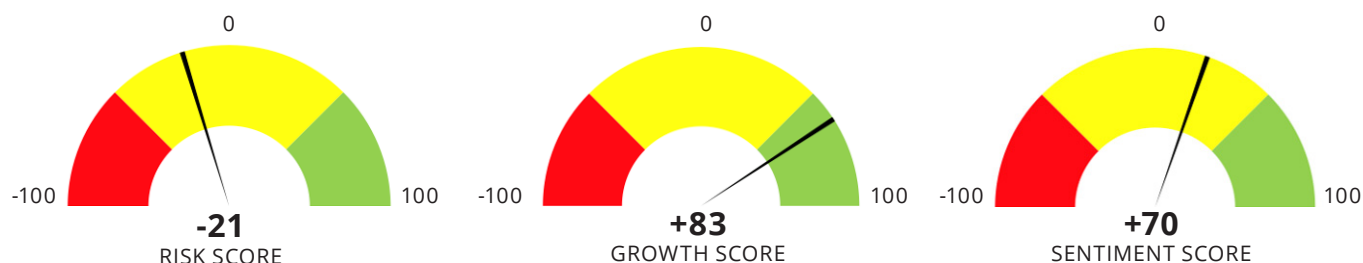
# BITVORE BUSINESS SIGNALS IDENTIFY MATERIAL BUSINESS EVENTS

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	IPO Withdrawn		Product Updates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

## 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.

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

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





# BITVORE®

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