



Automatic Trend Detection and Monitoring in Real Time Speed Up Research Processes

Case study – from news to trend monitoring for financial services

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Executive Summary

“With the AI solution from CID, we at the FERI Cognitive Finance Institute have the opportunity to use technologically sophisticated analytical tools in the field of Big Data and Artificial Intelligence to analyze relevant developments and long-term trends.”

Dr. Heinz-Werner Rapp, founder and head of the FERI Cognitive Finance Institute

The FERI Cognitive Finance Institute is the think tank and strategic research center of the FERI Group, a leading investment firm in Germany, Switzerland, Austria, and Luxemburg. Together with CID, a leader in Artificial Intelligence solutions for financial services, the FERI Cognitive Finance Institute implemented a trend radar system to support and accelerate their strategic research process.

The FERI Cognitive Finance Institute (“FCFI”) has developed a “mission map” comprising trend topics covering technology, economy, society, financial systems, politics, and environment. Leveraging CID’s AI platform, FCFI implemented these topics into the trend radar system using efficient, self-service tools. The underlying platform continually captures unstructured data and press coverage from thousands of online sources, more than 22 million records annually, and maps these automatically to FCFI topics, structured in a specific “content matrix”. This enables FCFI to monitor relevant topics for their mission map in real time, and to assess short and long-term trends.

Several analytical methods and procedures were applied to validate and approve the results the trend radar system provides. This “FERI Trend Radar” enables FCFI to enhance and deepen its holistic understanding of the economy and capital markets, to provide better research and explanation of economic processes, and to support investors to make decisions more efficiently, more transparently, and with less risk.

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Increase Research Process Efficiency and Transparency

FCFI intended to implement a sophisticated trend radar system. With its automated data collection and processing, CID's AI platform provides a data engine for the detection and monitoring of long-term trends as well as short-term hot topics. It provides FCFI with a powerful tool to apply innovative research methodology as well as interactive analytics and explanatory models to long-term trend analyses, including the use of "cognitive" information processing and the development of a "neural" analysis method.

Supported by the CID system, FCFI can focus even more precisely on long-term trends and strategic topics, as well as identify potential sources of risk more efficiently already in early stages.

FCFI wanted to leverage AI support for gaining a holistic understanding of a complex economy and highly connected capital markets. Main objectives are:

- Actively contribute to advanced research and enhance the explanation of economic processes and capital markets
- Support long-term "horizon analysis" focusing on global trends and developments of strategic importance
- Address and tackle current challenges and developments in asset management and trend analysis
- Provide topological overview of developments in macro topics and global markets with details and insights on meso and micro levels
- Verify and monitor major trends defined by FCFI with validated data

Market pressure on financial service providers has increased significantly, also due to the availability of big data. With the help of machine learning models, most financial institutions leverage fundamental and quantitative, "structured" data to enhance decision making processes and forecasting, and to identify potential risk and challenges already in early stages. However, many institutions still struggle to leverage qualitative, "unstructured" data to provide more transparency, and to better differentiate from competition.

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The FERI Trend Radar

For the purposes of the FERI Trend Radar, FCFI and CID have focused on the enrichment of structured data with unstructured data to strengthen trend identification, to provide relevant information faster, and to enable smarter explanatory and forecasting models for investors, asset managers, and the public.

The CID platform automatically captures content from various sources, including news, via web crawling. It applies Natural Language Processing (“NLP”), an ability of a computer program to understand human language as it is spoken and written, referred to as natural language, to recognize involved companies, industry sectors, and regions.

Various analytics tools and interactive visualizations allow the efficient screening of large volumes of information, the detection of key players in the context of a topic (e.g., crypto custody), the identification of potential new topics and trends, and the enrichment of structured data already in use.

A core benefit of CID’s AI system is its no-code, self-service approach to big data analytics. It enables business and research professionals to provide topic definitions which the system will learn from to provide analysis and monitoring as well as to support the detection of “sub-topics” and relevant trends within (e.g., cyber-attack risk in the context of the SARS-Cov-2 pandemic).

Another key capability of CID’s platform is a business graph – a network of companies, individuals, industry sectors, regions, and more which provides essential “meaning” to the datapoints of big data and thus enables more powerful analytics and explanatory models.

A major innovation by CID creates even more insightful business graphs by dynamically combining structured data such as fundamental company information with topics and events derived from the near real-time analysis of unstructured data (e.g., industry sectors, regions, or companies impacted by cyber-attack events).

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Verification of Trends

FCFI leveraged the self-service capabilities of the CID system to train it on 36 trend topics from their mission map. Using visual, interactive analytics tools, FCFI investigated the importance of trend topics from a perspective of English language press coverage.

News as basis for trend topic verification:
The CID system covers approx. 3,500 English language news websites from around the globe in near-real time, with 22 million stories captured in 2020.

As a first step, FCFI clustered the trend topics into a data query log reflecting the “FERI Cognitive Finance Institute Topic Categories” and configured the 36 underlying trend topics in the CID system (10 in technology, 5 in economy, 4 in society, 5 in financial system, 5 in politics, 7 in environment).

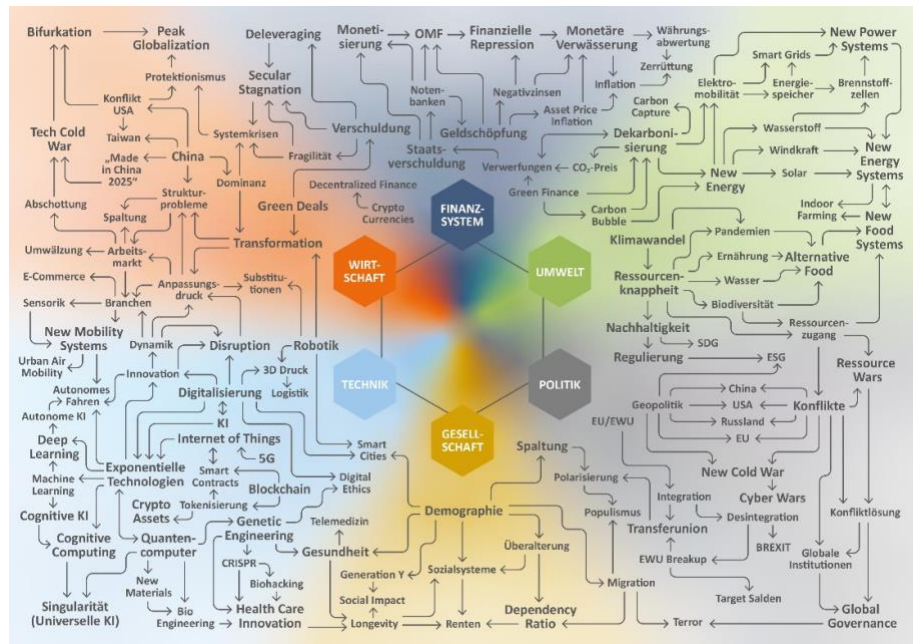


Figure 1: FERI Cognitive Finance Institute Mission Map with high-level trend topics and categories

In a second step, FCFI ran a first evaluation of the results from the trend topic news analysis in the system and exported metrics for each trend topic enabling additional calculations.

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Leveraging the metrics per trend topic, FCFI was able to define three main factors which translate data into insights available for visual presentation:

- Trend topic “growth” based on the idea of a Compound Annual Growth Rate (CAGR) to determine a longer-term trend rate for each topic
- Z-score representing short-term changes within a topic
- “Share of World” as a normalized topic frequency compared to the overall news coverage

These three factors enabled FCFI to set up a FERI Trend Radar data matrix locating each trend in one out of four quadrants – Latent Topic, Emerging Trend, Mainstream Adoption, and Supernova.

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Monitoring of Trend Topics

With the CID system, FCFI can screen all 36 trend topics continuously and in parallel to determine long-term trends and short-dated hot topics.

Several analyses have proven the FERI Trend Radar works, for example:

- “Cyber war” developed from “Emerging Trend” to “Supernova” after the Colonial Pipeline attack
- “Inflation” emerged from “Mainstream Adoption” to “Supernova” after inflation increased at the end of May (see figure 4)

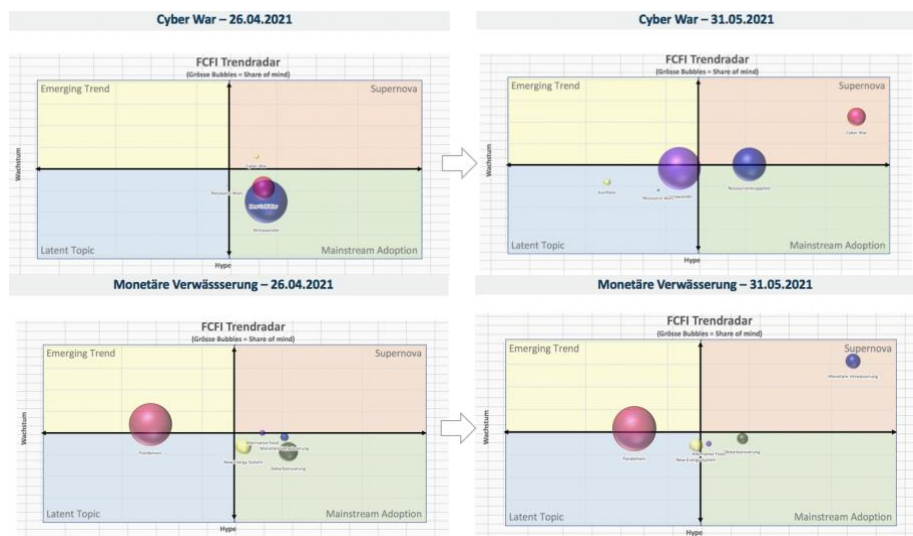


Figure 2: FERI Trend Radar visualization for selected topics

The “growth” factor indicates if a topic is already established or if it is an emerging trend. The “z-score” describes negative or positive short-term changes in the perception of established and emerging trends; the bubble reveals the importance of a topic compared to other topics.

With the CID system, the FERI Trend Radar can assess the relevance and potential perseverance of trend topics and provide an overview of recent developments on a macro level.

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Summary and Outlook

The FERI Cognitive Finance Institute and CID collaboratively created the FERI Trend Radar as an innovative approach to the holistic understanding of the economy and capital markets, as an active contribution to improve research and the explanation of complex economic processes and capital markets. It supports and enhances the long-term “horizon analysis” focused on global trends and developments of strategic importance.

Using Artificial Intelligence, the FERI Cognitive Finance Institute supports investors to make decisions more efficiently, more transparently and with less risk. The solution provides an innovative overview of macro developments with details on the meso and micro levels. It tracked and confirmed trends defined by FCFI with the analysis of validated data.

The FERI Cognitive Finance Institute will run an interactive visualization of the FERI Trend Radar on their website to provide the interested public with the most recent findings, automatically updated in near-real time.

Contributors and Contact Details

FERI Cognitive Finance Institute

The FERI Group is one of the leading investment houses in the German-speaking area. For over 30 years, it has been offering a unique concept that combines first-class wealth management with a renowned and proprietary research concept, now significantly enhanced by the FERI Cognitive Finance Institute. The FERI Cognitive Finance Institute is the strategic research center and creative think tank of the FERI Group and aims to constantly provide and enhance a deeper understanding of the complexity of the real economy and the dynamics of capital markets, and thus give investors a better guidance to make strategic decisions and to navigate the world.

Julia Bahlmann
Dr. Heinz-Werner Rapp
Luca Wuerz

info@feri-institut.de

CID

CID provides enhanced intelligence and analytics solutions for financial services companies. Clients achieve exceptionally high quality in data processing as foundation for process improvements and successful automation. CID solutions turn data into insight so that financial services can focus on highest value work – drive client engagement, enhance sales and investment performance, improve customer experience, and turn financial services truly digital.

Manuel Kirchberger
Patrick Sona
Alexander Stumpfegger

sales@cid.com

