

FRAUNHOFER INSTITUTE FOR TECHNOLOGICAL TREND ANALYSIS INT

KATI – Knowledge Analytics for Technology & Innovation



ABOUT KATI

Technology Foresight enables companies, governments and other clients to incorporate the effects of future technology developments into their strategic planning. The Fraunhofer Institute for Technological Trend Analysis (INT) has developed a state-of-the-art 360° Technology Scanning and Monitoring method to pursue this type of foresight. This 'science observatory' continuously monitors all relevant areas of science and technology. Recently, this observatory has been further boosted with the addition of an IT and data-based system called KATI.

KATI stands for Knowledge Analytics for Technology & Innovation. It is the specific focus of an ongoing research project. The project builds on both the content and methodological expertise of the scientists working in the field of technology foresight and analysis – It combines year of experience in datadriven foresight at the Fraunhofer INT. KATI takes the essence of decades of experience in data-driven foresight at the INT in order to realize several goals:

- The system makes the vast amount of information that exist in scientific publications, patents and internet sources for technology foresight accessible, in order to generate novel insights.
- It will support scientists in their technology foresight work and increase their literature research efficiency, which includes their ability to quickly familiarize themselves with new topics and assess future developments.
- Going forward, the project will explore novel ways in which cognitive computing and machine learning methods can be used in technology foresight.

To achieve these goals, KATI uses a modern database architecture and high-performance search engine, both of which have been implemented on Fraunhofer INT's powerful computer infrastructure. At present, KATI has access to and analyzes the bibliographic data of more than 57,000,000 scientific publications. The system's modern web-based interface and various interactive visualization tools to analyze results ensure accessibility and provide a good user experience. For example, identifying key publications or analyzing important actors and technologies takes just a few clicks.

Yet, despite all of this progress there is still work – and research! – to be done. Publication data and records need to be updated constantly. New visualization and analysis options are explored. New sources like blogs, news sites and patents are unlocked.



INSIDE KATI

The Actor Landscape

Apart from content-related aspects of a technology topic, client interest often focuses on the question of exactly who is concerned with which sub-aspects. By analyzing the actor's landscape at a country, institutional or author level, many questions can be answered. From the activities of individual players and their temporal dynamics, it is possible to deduce where research priorities are being set and how these shift over time.





Key Publications

One challenge for technology analyses is identifying key publications – publications that are particularly well suited to familiarize oneself with a subject and recognizing current developments. KATI offers several options to find those texts. It applies metrics that are based on the experience and expertise of INT staff. The interactive visualizations allow the user to view research results from different perspectives.

Analyzing Cooperation Networks

Scientists rarely work alone; they are usually part of a team. This gives rise to cooperation networks and their analysis is an integral part of analyzing the actor landscape – a typical task for KATI. Such analyses are for example useful where potential cooperation partners need to be identified. In this context, interactive visualizations are a prerequisite for generating meaningful insights from analyses.



Department Technological Analyses and Strategic Planning

The Department Technological Analyses and Strategic Planning (TASP), with around 40 scientists from a wide variety of disciplines – mainly science and technology – relies on its expertise in the global analysis and assessment of technological developments, and in identifying and structuring its clients' technological requirements.

Through a wide-ranging, systematic and ongoing technology foresight process, TASP's scientists specialize in the expertise necessary to identify technological innovations early, comprehensively assess and classify them, and to judge future development prospects.

With TASP's continually expanding portfolio of approaches and methods for participatory and creative work formats – especially for quantitative IT-backed procedures for data analysis, and innovative visualization techniques, the Department has created a methodological basis for a wide range of issues and applications.

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