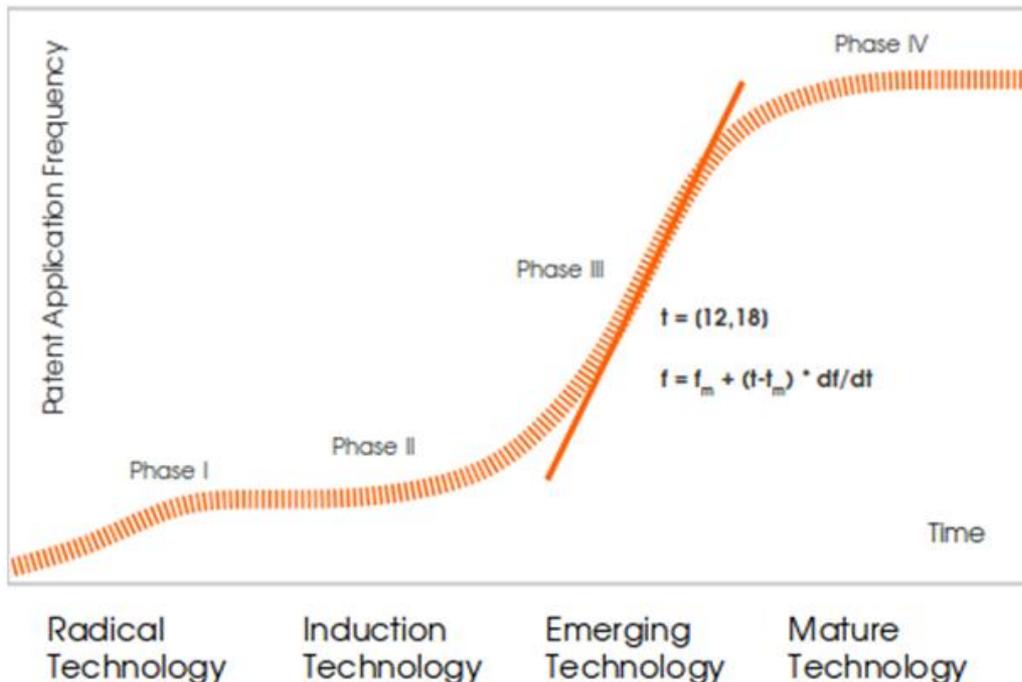


Determining Technology Maturity

The ability to map technological maturity enables strategic decisions to invest in new technologies that will capture market share and rapid profitability. This process is superior to previous attempts to supplant existing technologies using trial and error development programs whose success is based on unpredictable results.



Advanced methods based on bibliometric analysis of big data enable the identification of the current status of a technology. It's time to determine where your company is—and where it needs to be—on the technology maturity curve. **PERCIPIO** makes this effort quite smart and simple.

Technology Mapping in Practice

Evaluating maturity of specific technologies requires a sequence of activities.

1. Define the technology to be evaluated as clearly as possible.
2. Conduct patent and literature search and count the references of your technology over time.
3. Draw a graph showing number of citations over time.
4. Interpret the status of your technology.

percipio<BigData> supports these activities comprehensively and efficiently.

Defining the Technology of Interest

- Characterize the technology of interest by choosing a couple of keywords.
- Get in touch with **percipio**<BigData> and ask them for setting up your private database.
- Submit your keywords.
- Access your private **percipio**<BigData> database and start the assessment.

Designing a Specific Technology Focus (2)

The better you specify your technology the more specific your results are going to be. Here the terms “surface”, “application” and “polymer” have been added.

The screenshot displays a technology mapping software interface with several key components:

- Word Cloud:** A word cloud on the left side of the interface, with "nanoparticle" and "material" being the most prominent terms. Other visible words include "nanotechnology", "imaging", "molecular", "cell", "mechanical", "carbon", "cancer", "nanotube", "dna", "film", "engineering", "potential", "delivery", "system", "chemistry", "report", "method", "graphene", "electronic", "field", "protein", "control", "base", "develop", "bioengineer", "development", "mechanic", and "microscopy".
- Words History from 1970:** A bar chart below the word cloud showing the frequency of terms from 1970 to 2020. The x-axis represents years, and the y-axis represents frequency. Three series are shown: "surface" (blue), "application" (orange), and "polymer" (green). The "surface" series shows a significant upward trend starting around 2010, while "application" and "polymer" remain relatively stable.
- Patent Documents:** A list of patent documents on the right side of the interface. The first document is titled "Chapter 19 Nanomaterials for removal of waterborne pathogens opportunities and challenges" by Anika Ojha (2020). Other documents include "ACRYLONITRILE-BUTADIENE-STYRENE COPOLYMER COMPOSITION WITH HIGH SURFACE ENERGY" and "Novel Polymers And DNA Copolymer Coatings".
- World Map:** A world map on the right side of the interface showing data points (circles) of various colors (blue, orange, green, red) and sizes, representing the geographic distribution of the technology focus. The map is titled "All documents" and includes a search bar and a "Location only" checkbox.
- Filtering:** At the bottom left, there are three filter buttons: "surface", "application", and "polymer". These buttons are circled in red, indicating that they have been used to filter the results.

Designing a Specific Technology Focus (3)

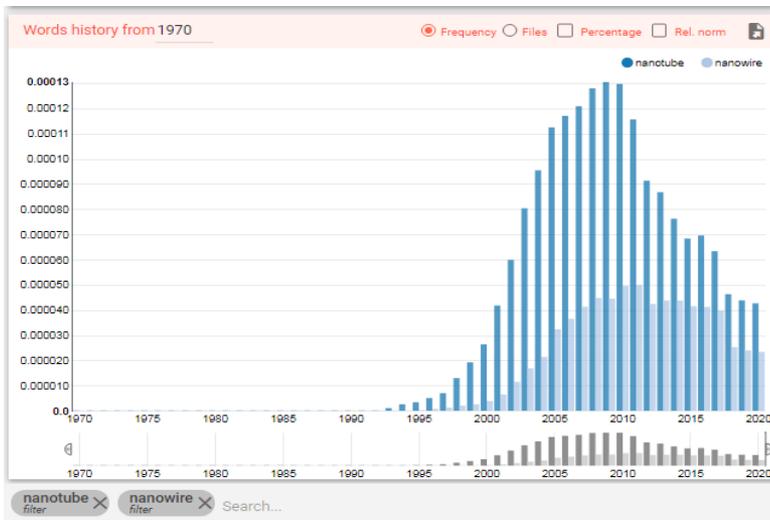
As you want to explore specific technology maturity curves, try to delete or change your keyword selection or add additional terms not shown in the word cloud to the search bar.

The screenshot displays a patent search interface for the keyword "nanotechnology". The interface is divided into several sections:

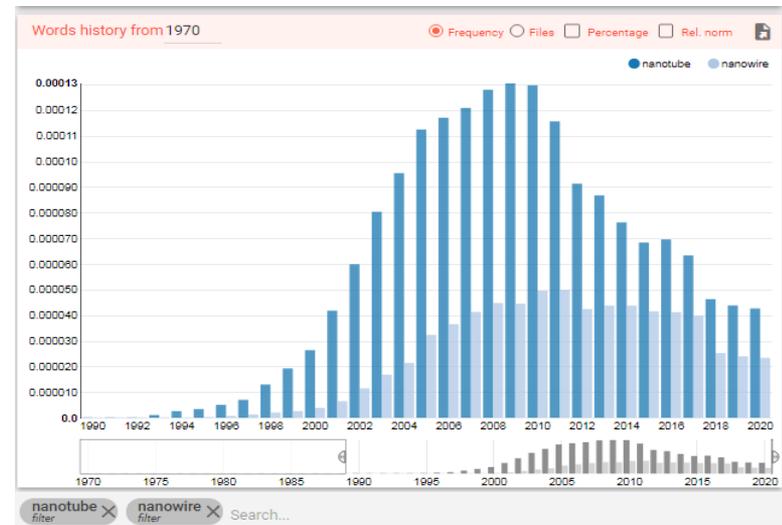
- Word Cloud:** A word cloud on the left side of the interface, with "nanoparticle" and "material" being the most prominent terms. Other visible terms include "structure", "optical", "nanowire", "detection", "quantum", "array", "field", "electrical", "gold", "microscopy", "technique", "oxide", "drug", "base", "application", "device", "development", "delivery", "cell", "system", "chemistry", "polymer", "synthesis", "science", "method", "high", "report", "property", "mechanic", "carbon", "dna", "film", "surface", "effect", "molecular", "substrate", "cancer", "mechanical", "electronic", "control", "approach", "bioengineer", "nanotechnology", "develop", "potential", "imaging", "investigate", "process", "report", "property", "effect", "molecular", "control", "approach", "develop", "potential", "imaging".
- Words History from 1970:** A bar chart showing the frequency of the word "nanotechnology" from 1970 to 2020. The frequency starts near zero in 1970 and shows a significant upward trend starting around 2000, peaking around 2010-2015.
- Patent Documents List:** A list of patent documents with titles such as "CARBON NANOTUBE PRODUCT MANUFACTURING SYSTEM AND METHOD OF MANUFACTURE THEREOF" and "STRETCHABLE COMPOSITE ELECTRODE AND STRETCHABLE LITHIUM ION SECONDARY BATTERY".
- World Map:** A world map on the right side of the interface, showing the geographical distribution of patent filings. Numerous colored markers (green, blue, yellow) are placed on the map, indicating the locations of patent holders or inventors.
- Search Bar:** A search bar at the bottom left of the interface, containing the keyword "nanotechnology". The search bar is circled in red.

Collecting the Results (3)

The timeline of keyword statistics is calculated relative to each year. You may use the slider for choosing an appropriate time range.



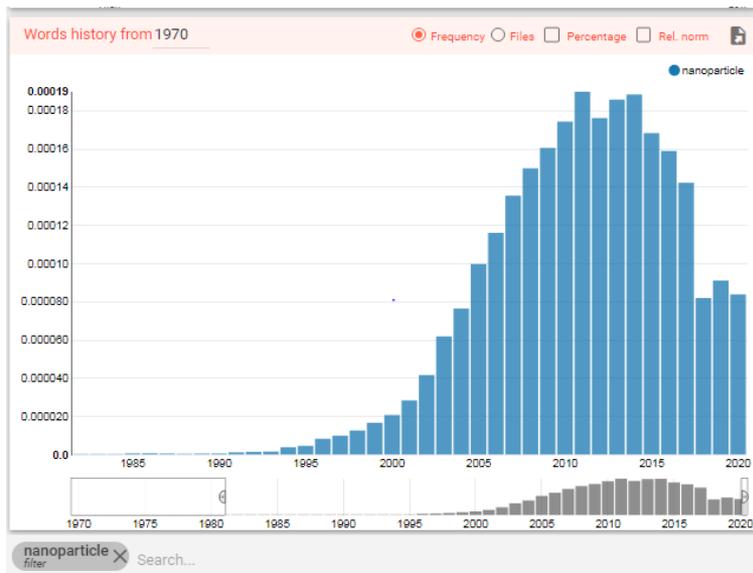
Slider in position “1970”



Slider moved to “1990”

Interpreting the Results (1)

Eventually you get both a specific and comprehensive picture of how your defined fields of technology are developing.



Within the field “nanotechnology” the number publications on nanoparticles, based on patents and scientific papers, is declining.



Within the field “nanotechnology” the number publications on surfaces, based on patents and scientific papers, is increasing.

That's by far not all

Based on your private **percipio**<BigData> database you may expand your research by further built-in functionalities.

- Evaluation of technology maturity
- Identification and location of experts in technologies of interest
- Performing dynamic searches based on pre-defined technologies
- Exploring of “unknown unknowns” by using the “frequency versus correlation” algorithm
- A “news button” provides you with the latest news about and around your technology of interest
- Classic search of patents and scientific articles
- and many more

Recommended Links

- Technology Maturity Using S-curve Descriptors
<https://triz-journal.com/technology-maturity-using-s-curve-descriptors/>
- Technology Foresight: Types and Methods
https://www.researchgate.net/publication/240749145_Technology_foresight_Types_and_methods
- Percipio Instruction Manual
https://percipio-big-data.com/files/percipio_user_manual.pdf
- Percipio Cases
https://percipio-big-data.com/files/percipio_sign_up_and_choose_plan.pdf

