Technological watch:

how to do technological watch, tools and references on advanced textile materials

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Introduction

Competitive intelligence is the key of a successful business strategy. However, the pace at which technology is disrupting industries makes it an indispensable cornerstone in anticipating new competitive drivers. Here's where a **technological watch** process can help, and it explains why it is so important nowadays.

A technological watch process gives access to the latest information related to innovations, emerging trends and developments, active companies and their R&D strategies, impact of new technology adoption and new market opportunities, among others.

Technological watch can support a company's goals by understanding the value of emerging technologies, strengthening useful technologies at hand, and allowing new market opportunities.

Keywords

Technological watch, innovation, information sources, competition watch, comercial watch, surrounding watch.

Goals

The main goals of this lecture are to explain the technological watch process.

Thus, we will start explaining what technological watch is and its advantages, and also defining the related processes. Then, we will explain how to perform a technological watch process and we will finish giving some ideas about the information sources that can be used.

With this lecture, we aim to provide an overview about the technological watch process, their definition and basic ideas about how to perform it.

Structure

In the current content you will find:

- An introduction to technological watch
- The technological watch process
- Information sources

Learning outcomes

Knowledge

- Obtaining a general knowledge about technological watch, its definition, uses and related concepts.
- Being able to define the steps of a technological watch process.
- Being able to find necessary information to perform a technological watch process.

Competences

- Define technological watch concept and its nowadays significance.
- Being able to define the steps of a technological watch process.
- Being able to find necessary information to perform a technological watch process.

1. Introduction

1.1. Definition

Technological watch is the observation and analysis of the environment followed by the well-specified dissemination of selected and analyzed information, useful for strategic decision-making.

Technological watch consists in systematically capturing, analyzing, disseminating and exploiting useful technical information for the watch and growth of a company.
Technological watch must be ready for any scientific or technical innovation susceptible to creating opportunities or threats[1].

1. Escorsa, P Maspons, R. (2001a), “De la Vigilancia Tecnológica a la Inteligencia Competitiva”, Financial Times/Prentice Hall, Pearson Educación, Madrid.

1.1. Definition

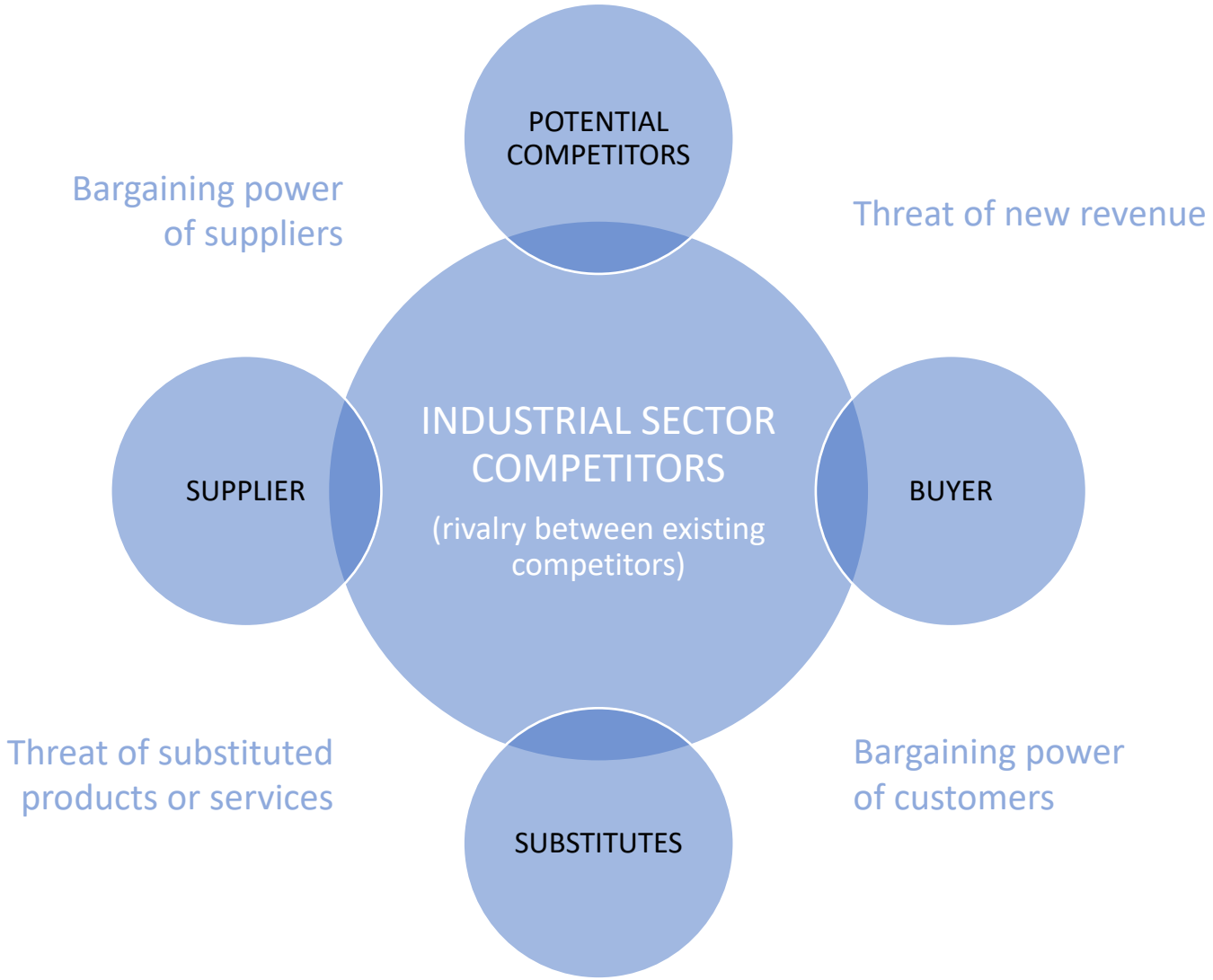


Diagram: Michael Porter, Estrategia Competitiva. Técnicas para el análisis de los sectores industriales y de la competencia, 1994

1.2. Why to apply a Technological watch process?

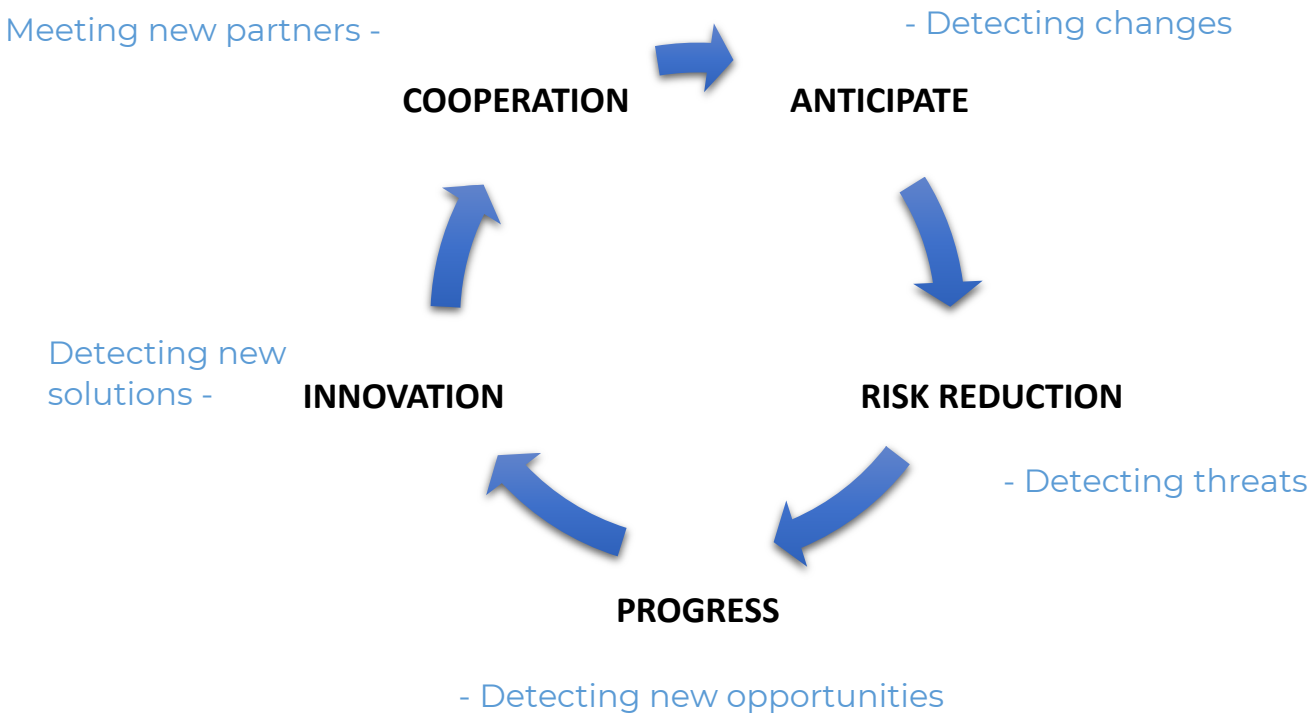
The main application of Technological watch is to obtain technical information to make decisions in a company's production department. However, the watch processes are also applied to commercial decision-making processes. In these fields, the terms Commercial Watch, Competition Watch or Surrounding Watch are often used, even though Technology Watch is also used, becoming the commonly used term.

A good Technological watch process must provide us information about:

- Technologies that are being researched about (published or patented) in a specific field
- Technological solutions available
- Emerging technologies
- Dynamics of technologies (what technologies are becoming more popular and which ones are obsolete)
- Research lines and technology trends in the main competitors' companies
- Research centers, teams, and leaders in the generation of new technologies, able of transferring that technology

2. http://www.atoutveille.com/Images/EU-definition_Technology-Watching_Competitive-Intelligence.pdf

There are many reasons why a company should implement technology watching; reasons can be grouped into 5 categories[2]:



2. http://www.atoutveille.com/Images/EU-definition_Technology-Watching_Competitive-Intelligence.pdf

1.3. Interrelated concepts

PASSIVE TECHNOLOGICAL WATCHING (SCANNING)

Routinely scan a wide range of sources of information to find data and indicators of interest to the company.

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ACTIVE TECHNOLOGICAL WATCHING (MONITORING)

Search for relevant information on a regular basis about the areas selected by the company, in order to provide continuous knowledge of the current technological developments and technological trends emerging.

The main application of Technological watch is to obtain technical information to make decisions in a company's production department. However, the watch processes are also applied to commercial decision-making processes. In these fields, the terms Commercial watch, Competition watch or Surrounding watch are often used to express nuances of the same concept:

- **Technology watch**: available or new technologies, ability to intervene in new products or processes.
- **Competition watch**: information on competitors current and potential.
- **Commercial watch**: data on products, markets, customers and suppliers.
- **Surrounding watch**: detection of external events that may condition the future.

1.4. What are the advantages of Technology watching?

The benefits that implementing a technology watching and competitive intelligence system provide to a company can be summarized in an improvement of the business overall position, adding value to the products and services and reducing the risk towards an eventual business failure. Knowledge transfer and improvement of internal and external communication might also take place as a positive consequence of the implantation for this kind of system.

Technological watch advantages:

- Alert on threats with repercussions on our market from sectors other than the company.
- Helps decide the R&D program and its strategy.
- It contributes to abandoning certain R&D project in time.
- Detects investment and marketing opportunities.
- Facilitates the incorporation of new technological advances into the products and processes themselves.
- Identifies suitable partners in joint R&D projects saving investments.
- It avoids non-tariff barriers to foreign markets.

Technological watch and **Competitive Intelligence** are two interlinked processes and both of them oriented to improving company's competitiveness. Technological watch is inseparable from the term Competitive intelligence, and often both terms are used together. Competitive intelligence is defined as an ethical and ongoing process of gathering all the business environment information from the company itself and others, analyzing it and communicating it in a pertinent, precise, specific, opportune, predictable and active way.

Among the two disciplines, there is a key difference: while Technological watch emphasizes on the search and capture of relevant information to make decisions, Competitive intelligence refers to the same process, but with the emphasis on creating new information, often implying the capture of new information to understand it.

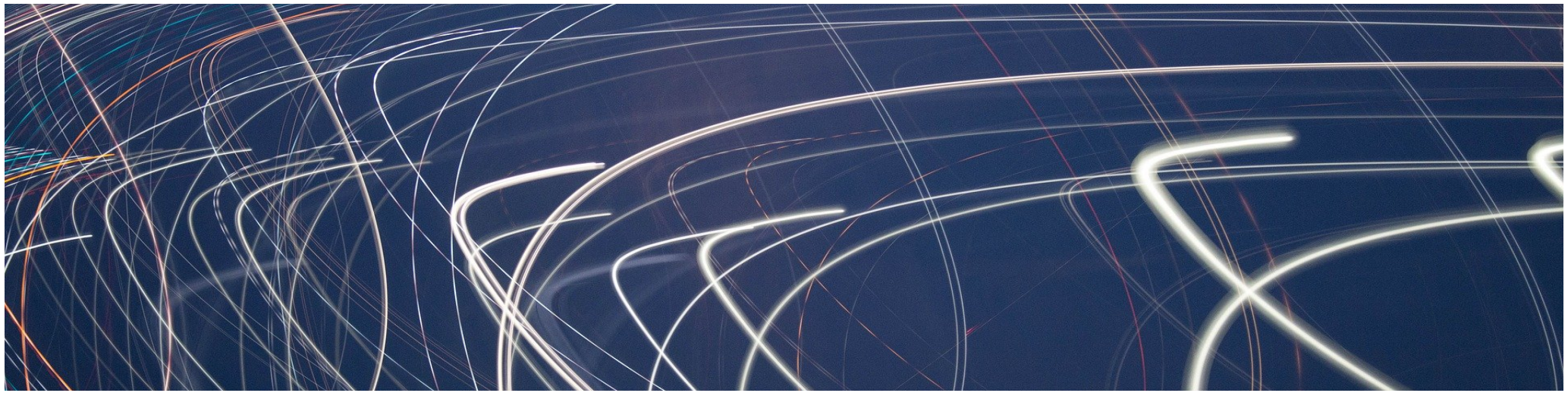
Another linked concept is the **Technological perspective**, defined as a set of analysis and studies performed in order to explore or predict the future, in a given subject, using methods and tools that allow the achievement of certain industrial or commercial objectives.

2. Technological watch process

For a high-tech company, investment in a new technology is a strategic decision that can have a major impact on the company's performance for many years.

The wrong timing or choice in technology investment (e.g. due to the inherent limitations of the technology, lack of relevance to the company's products or preexisting competitor IPR) can result in low profits and obsolete products.

Intelligence-based assessments of future technology developments can reveal potential threats and opportunities; if these assessments are used to support a company's strategic technology planning process, then the company can anticipate threats and opportunities arising from such developments and can react in time to benefit from them[3].



3. An intelligent technology watch function for the high technology enterprise. Hogdson, A; Arman, H. International Journal of Industrial and Systems Engineering · January 2008.

2.1. Information gathering

Based on:

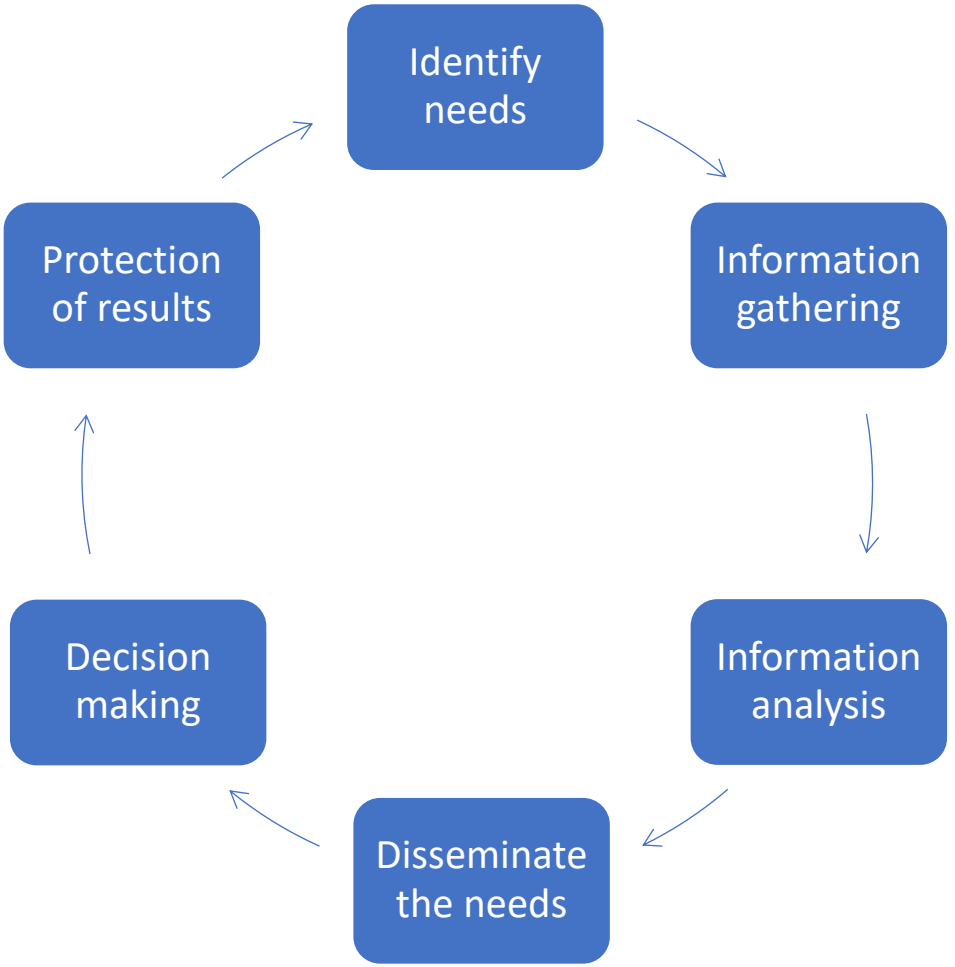
1. **OBSERVE**: search, capture and dissemination
2. **ANALYZE**: treatment, analysis and validation
3. **USE**: exploitation of results

The first phases of the Technological watch process are the following[4]:

1. Identify and analyze the company's information needs defining the critical watch factors (CWF)
2. Search and obtain the necessary information for tracking the CWF
3. Evaluate and analyze the information obtained
4. Internally disseminate the results
5. Use the information in the decision-making process

These five phases are executed continuously and cyclically.

Often the decisions made imply the existence of new CWF, starting a new cycle.



4. https://www.upf.edu/hipertextnet/en/numero-6/vigilancia-tecnologica.html

2.2. Information needs and critical watch factors

There are two key external information needs a company has[5]:

- Technological information needs: Know the technological changes that could affect the company as soon as possible
- Commercial information needs: Know what the competitors are doing and know any changes in the general commercial environment

From these two types of needs we can specify the Critical Watch Factors (CWF) as external company factors critically affecting its competitiveness. Each activity, even each company department, can have specific CWF that depend mainly on the defined strategic plan.

For a good Technological watch process design, the CWF must be defined as specifically as possible. For example, a SEO-SEM company could have the following CWF:

5. https://www.upf.edu/hipertextnet/en/numero-6/vigilancia-tecnologica.html

Technology CWF

- The specific information on what type of SEO practices are penalized by Google
- Changes in Page Rank algorithms
- Changes in Google, Yahoo, Live´s algorithm order...
- Nuances in the service features in search engine marketing
- Appearance of new specialized search engines

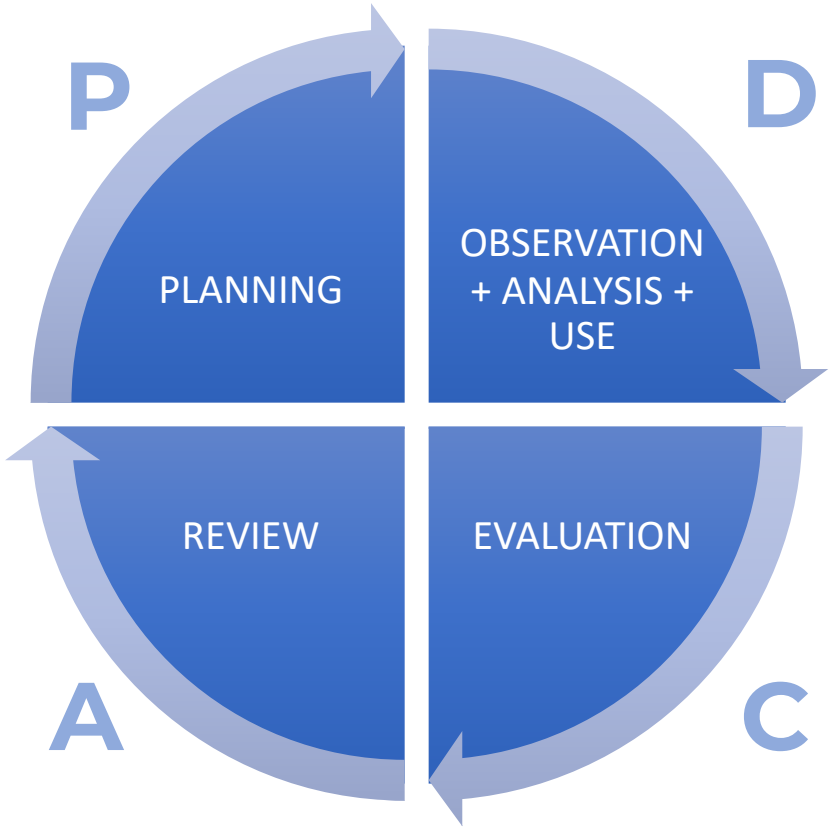
Commercial CWF

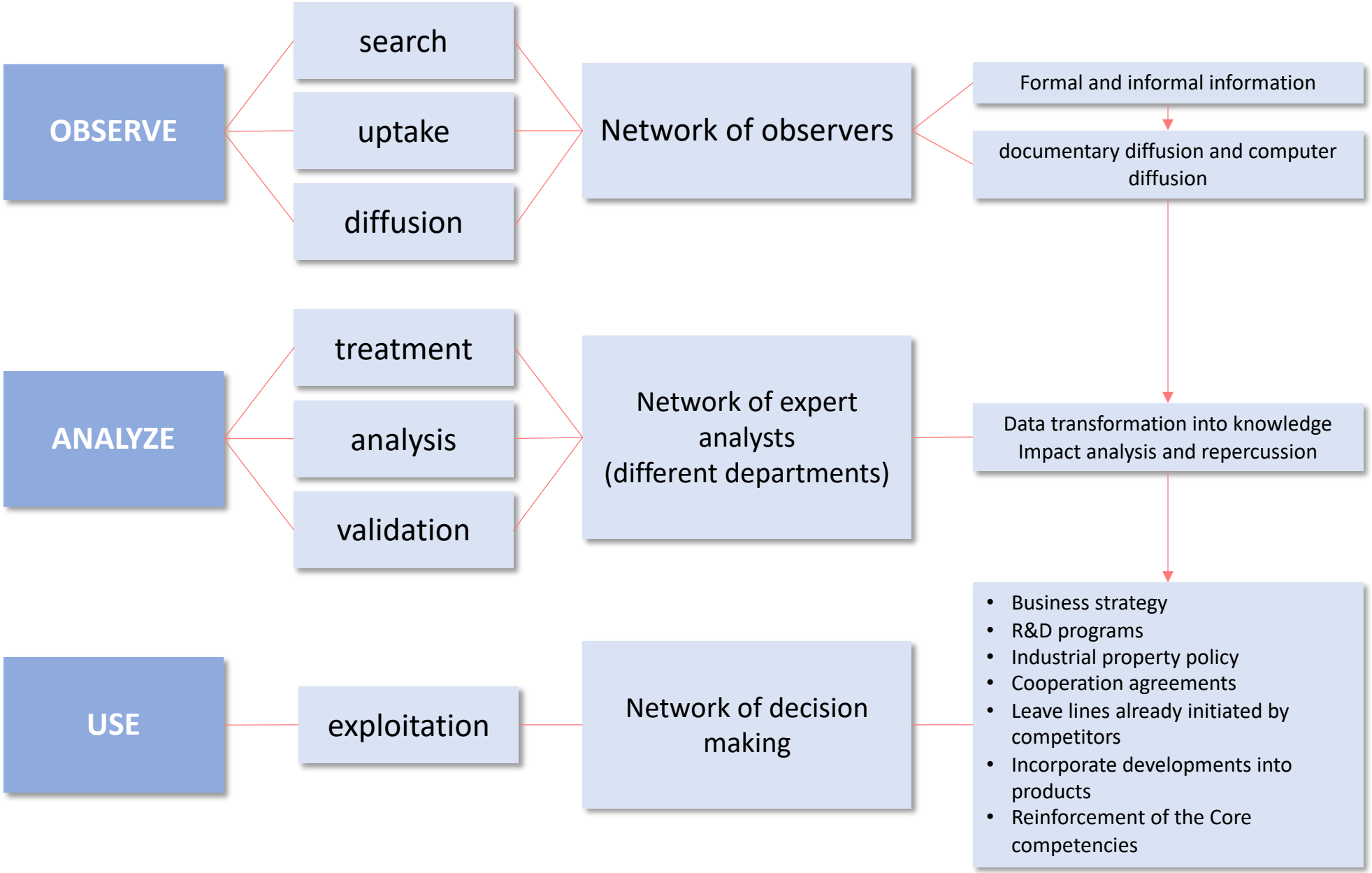
- What is the profile for users who are interested in our services but still not our customers?
- How is our target?
- Is our service truly what our costumers need? Could we offer additional services?
- What search engine is the leader in the search engine marketing sector and what is their market share?
- How do the Internet users behave?
- What new concepts, services, companies... are there any in my sector?

2.3. Organize the capture of information in the company

Evaluation and selection of information:

- **Evaluation variables**: reliability, wealth, vulnerability, discretion and results over time
- **Source analysis**: reliable, reliable sources at risk of subjectivity, insecure and suspicious
- Evaluation **integrated in the monitoring process**, to be performed continuously




OBSERVE
search
uptake
diffusion
Network of observers
Formal and informal information
documentary diffusion and computer diffusion
ANALYZE
treatment
analysis
validation
Network of expert analysts (different departments)
Data transformation into knowledge Impact analysis and repercussion
USE
exploitation
Network of decision making
Business strategy
R&D programs
Industrial property policy
Cooperation agreements
Leave lines already initiated by competitors
Incorporate developments into products
Reinforcement of the Core competencies

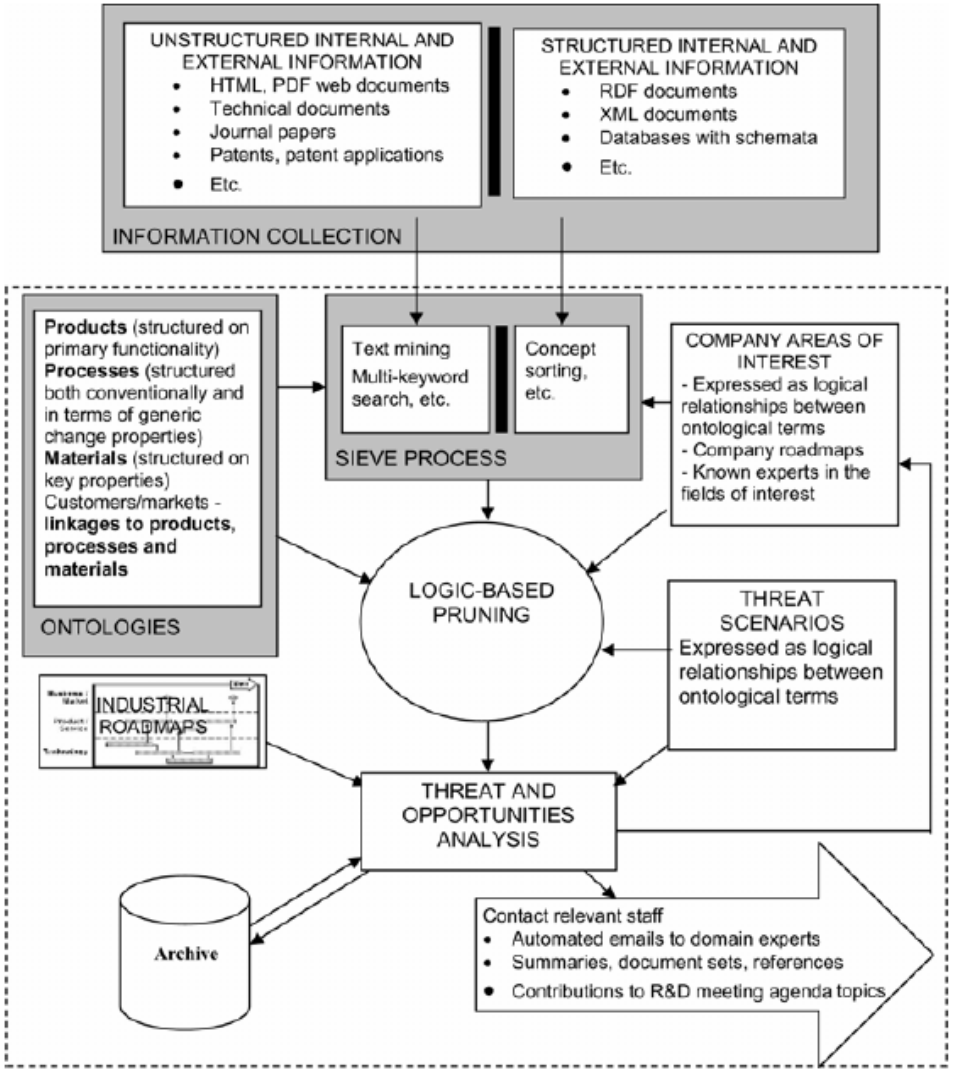


Diagram: An intelligent technology watch function for the high technology enterprise. Hogdson, A; Arman, H. International Journal of Industrial and Systems Engineering · January 2008.

3. Information sources

In order to carry out a successful Technological watch, it is recommended to find a lot of information to analyze. This section presents different options available, among others, to meet this goal.

Informal sources

Competitors

Suppliers

Customers

Subcontracted companies

Fairs

Congresses, seminars, conferences

Business missions

Interns

Committees

Internal company sources

Formal sources

Press

Patents

Database

Publications from other companies

Publications of official bodies

Books

3.1. Fairs and exhibitions

techtextil

IFAI Industrial Fabrics Association International

A+A 26 - 29 OCTOBER 2021 DÜSSELDORF, GERMANY

MEDICA www.medica.de

Expo PROTECTION

ISPO Munich

heimtextil

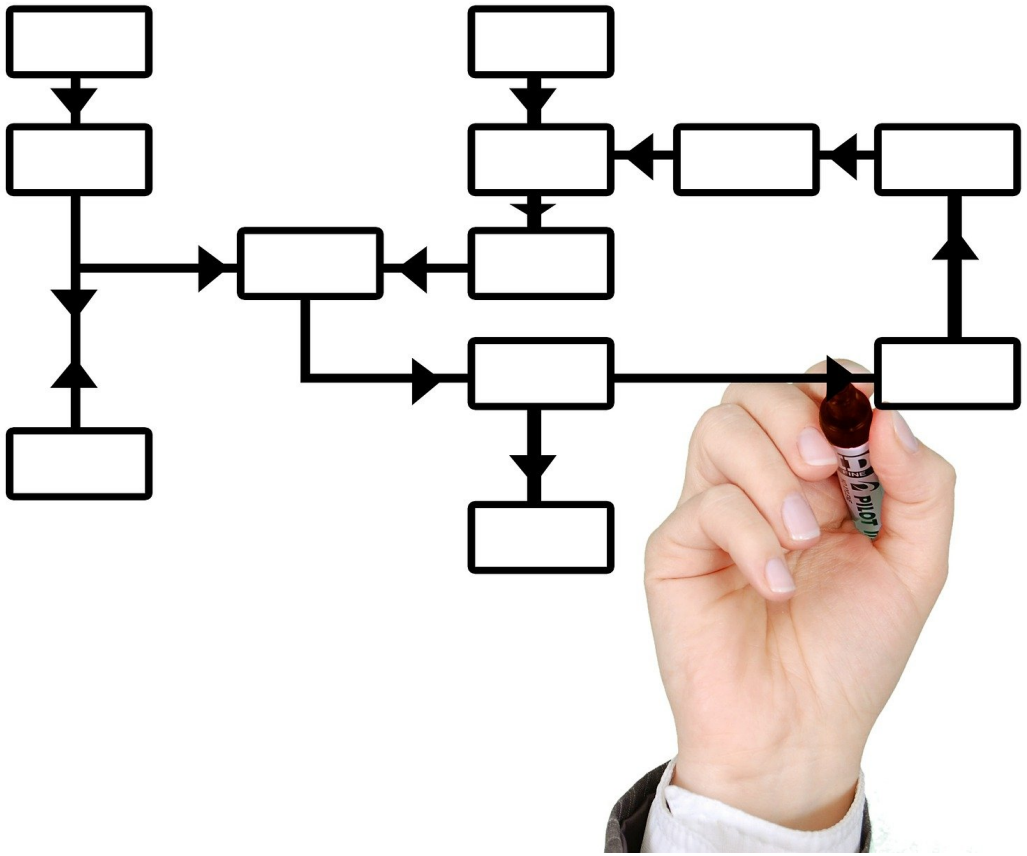
ITMA 2023 www.itma.com

3.2. Patent search

- Espacenet (European patent agency):

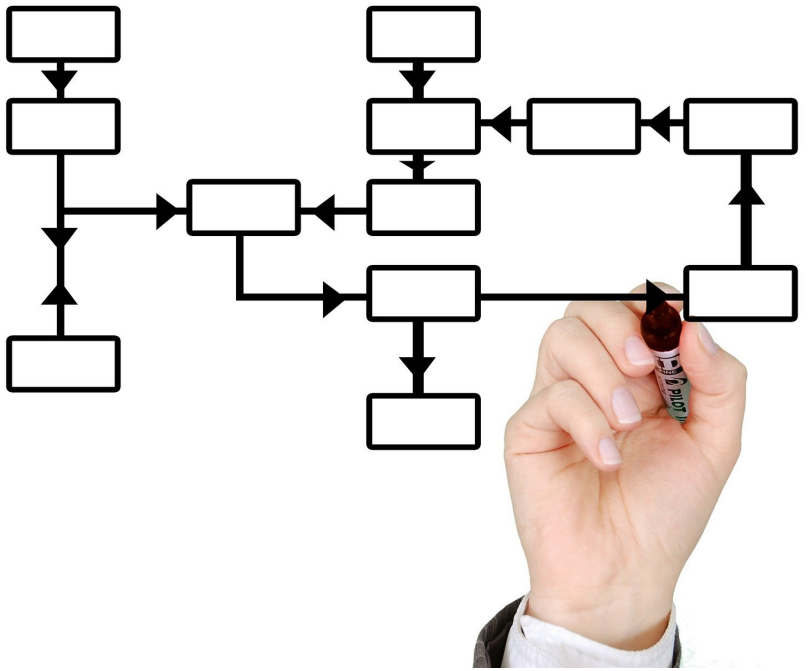
  https://worldwide.espacenet.com/

- Google Patents: https://www.google.com/?tbm=pts
- WIPO (only PCTs): https://patentscope.wipo.int/



3.3. Publications' search

- Researchgate: https://www.researchgate.net/
- Science direct: https://www.sciencedirect.com/
- Scopus: https://www.scopus.com/home.uri
- Wiley Online Library: https://onlinelibrary.wiley.com/
- Compendex (Engineering Village): https://www.engineeringvillage.com/home.url
- Colour Index: https://colour-index.com/
- AENOR más: https://www.aenor.com/normas-y-libros/buscador-de-normas



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