



WHITE PAPER

Technology Scouting

Improving the market position and competitive advantages

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Technology scouting is a method for identifying new technologies at an early stage by systematically analyzing information with the aim of consolidating a company's market position. In order to exploit benefits such as trend recognition, portfolio optimization and the identification of key patents, challenges such as devoting sufficient time to scouting and finding the proverbial needle in the haystack have to be overcome.

INTRODUCTION

The world is undergoing a period of rapid and continuous change. Shorter product life cycles, growing demand for personalization, volatile markets and the need to share data quickly are just a few examples of the impacts that the significant changes have already made and will continue to make in the future. The pressure on companies to drive innovation, rather than simply jumping on bandwagons, is growing, at the same time as their efforts to remain profitable in the future are increasing. This makes it essential for companies to have the right tools available so that they can maintain and develop their competitive advantages. Examples of the type of tools that are needed for the early recognition of technological trends include publication and patent analyses. The disadvantages of this approach are, on the one hand, the time delay resulting from the administrative processes, which should not be underestimated and can last for between 12 and 18 months^[1], and, on the other hand, the considerable costs involved in the subsequent acquisition of the patent^[2]. One solution that will reduce the time discrepancy and the financial expense is technology scouting.

This paper aims to give a general overview of technology scouting. First of all, a distinction will be made between this term and other buzzwords, such as technology foresight and technology management. This will be followed by a rough outline of the process of technology scouting in a company. Finally, the benefits and the challenges of this approach will be highlighted. The summary at the end of the paper will cover the central themes and give an insight into future developments.

WHAT IS TECHNOLOGY SCOUTING?

Technology scouting (TS) is a systematic approach that will help to bring together and interpret information for the purpose of recognizing new technological trends and identifying the sources of new technologies^{[3] [4]}.

By contrast, technology foresight (TF) is also used to identify and gain access to information, however not relating to new technologies, as is the case with TS, but instead to technological developments. Finally, the purpose of technology management (TM) is to acquire, develop, store and market new technologies^[5]. Figure 1 shows the distinctions between the approaches and the tasks involved in TS, TF and TM.

As the name suggests, technology scouting involves using scouts to acquire information that will enable new technologies to be identified. These scouts can be internal employees and also external consultants. It can also be useful to form a specialist team of scouts to allow for fast action and direct communication with decision-makers. In addition, the scouting assignment can be either directed or undirected.

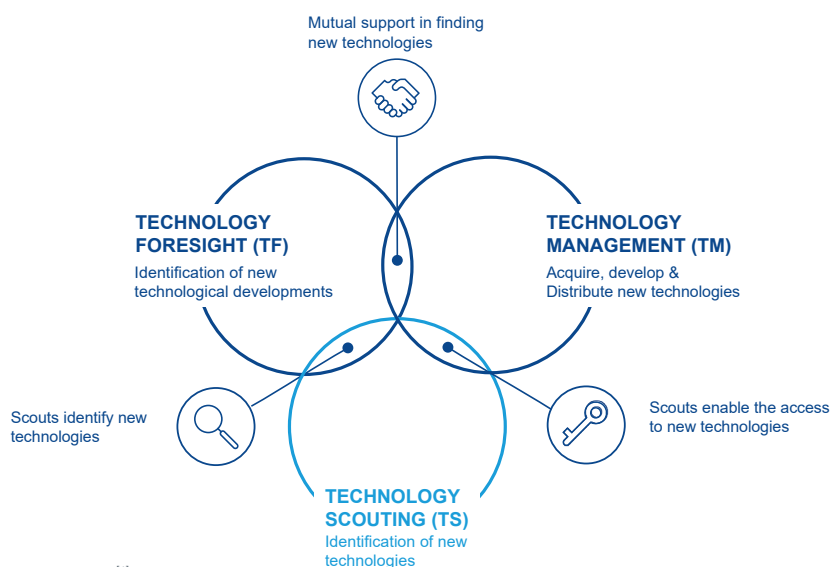


Figure 1: Distinction between TS, TF and TM^[6].

Technology Scouting

Improving the market position and competitive advantages

In a directed assignment, the scouts search for information in a specific technological field or area. Undirected assignments involve the scouts trawling systematically through all the relevant fields and areas for information. Scouts need specific skills in order to be successful. These include, for example, the ability to think outside the box, a knowledge of science and technology, a cross-disciplinary approach, a vivid imagination and a certain standing within the organization to ensure that any new directions taken by the company in the future gain acceptance^[7].

The main goal of technology scouting is to maintain or achieve competitive advantages, to consolidate the company's market position and to gain market share. Under the umbrella of this overall goal, additional subsidiary goals for technology scouting can be defined.

These include initially (1) the early identification of new technologies. By recognizing new technologies at an early stage, the company can gain a valuable head start over its competitors. In addition, (2) it is possible to raise awareness within the company about the opportunities and the threats that the newly identified technologies bring with them. These early awareness-raising measures should (3) stimulate innovation. Finally, the network of scouts (4) will create a direct link to the source of the information and the innovations^[8].

HOW DOES TECHNOLOGY SCOUTING WORK?

The technology scouting process can be divided into a total of six steps. The first five of these are based on the technology intelligence process, and the final step is described as technology sourcing. This step-by-step approach is shown in Figure 2 and is explained below.

“The goal is to achieve competitive advantages and to consolidate the company's market position.”

In step (1), defining the search areas, the fundamental goals of the scouting process are determined, for example by asking questions^[9]. It may be important to decide whether the search should be directed or undirected, as described in the previous section^[10].

In step (2), selecting the information sources, the methods for generating data must be developed and defined. Some possible approaches to data generation include job rotations between different departments within a company, analyzing customer requirements and suggestions and monitoring venture capital companies and the start-up market. Other useful methods for generating data are database searches for industry magazines and research reports and also bringing in the scouts' networks and attending trade fairs, workshops and conferences^[13].

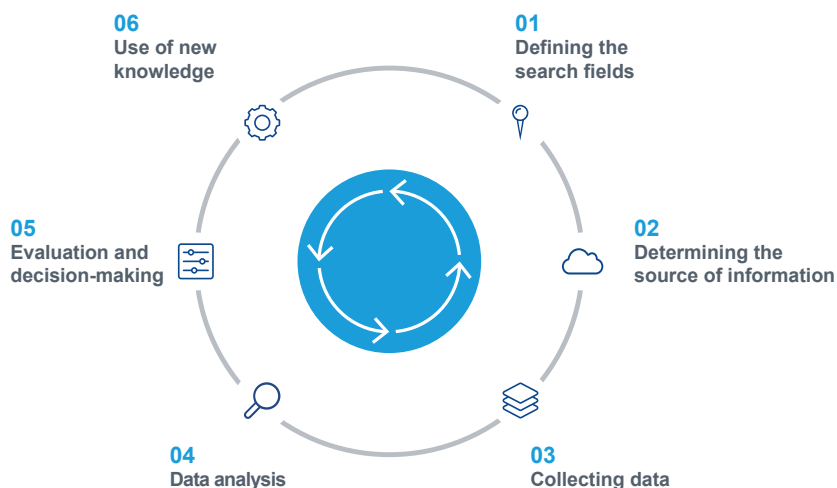


Figure 2: The technology scouting process^{[11][12]}.

Technology Scouting

Improving the market position and competitive advantages

In step (3), collecting data, information of all kinds is brought together. This step can take place internally, for example by analyzing suppliers and customers or holding employee surveys, and externally, for example in collaboration with research institutions or universities or by analyzing competitors, start-ups and the scouts' networks^[14].

The better networked the scouts are and the greater their abilities, the more high-quality information they can collect^[15].

In step (4), analyzing the data, the information that has been collected is filtered, processed and stored. It is important to store only relevant information^[16].

Particularly good results can be achieved in this step if interactive teams work together with the scouts^[17].

Step (5) concerns evaluating the collected data and making decisions. It is important to decide on the basis of the information from the scouting process which direction should be taken in the future and which should not. In addition, the process of providing resources can be completed in this fifth step^{[18] [19]}.

In the final step (6), using the new findings, the process comes to an end. The added value for the company is created in this phase. For this reason, it is helpful to delay carrying out a cost-benefit analysis until this point^[20].

WHAT ARE THE BENEFITS AND CHALLENGES OF TECHNOLOGY SCOUTING?

Technology scouting has a variety of benefits. For companies that want to maintain or improve their market position, this approach will be of particular interest for the following reasons.

The most important benefit of technology scouting, which was mentioned at the start of the paper, is the identification of trends leading to new technologies. It is important to differentiate between technology clusters that offer the potential for growth and those that have already reached maturity, in order to identify lucrative areas for investment^[21].

Of course, the company's competitors are also on the lookout for a new and promising technology and for the opportunity to steal its market share. By identifying trends and technologies at an early stage, it is possible for the company to preempt its competitors and to acquire market share at their expense, rather than losing its own^[22].

In addition, technology scouting can help to identify key patents within a technology cluster. This is particularly important when it comes to purchasing patents. Without the fundamental knowledge provided by the technology scouting process, the acquisition of all the patents would lead to unaffordable costs being incurred. Instead the central patents can be identified and purchased, keeping costs to a minimum and maximizing the technological value^[23].

The benefit of identifying technology clusters that was referred to at the start of this section has a further impact. The uncovering of these clusters not only opens up possible markets and potential growth, but also gives an insight into the white spaces of a field of technology. This means that the areas where little or no research has so far been carried out and where no patents have been registered can be identified early^[24]. As a result, existing products and services in the company's portfolio can be optimized and extended^[25].

For example, if the technology scouting process identifies a start-up early in its development, it may be possible to buy it for a reasonable price. This means acquiring not only the new firm's technologies, but also potentially its customers. In addition, the most innovative people in this field can be brought into the original company by integrating the start-up into its organization^[26].

Alongside all the benefits offered by technology scouting, there are also a number of challenges that need to be overcome.

“For me the network is the decisive factor.”

Dürr R&D Innovation Expert

Technology Scouting

Improving the market position and competitive advantages

A survey carried out in 2017 aimed to discover the ten most common obstacles to technology scouting. Linking the results of the technology scouting process to the existing business came in first place. Almost 60 percent of all the respondents highlighted this problem. In second place was the question of identifying the right areas to scout. Just over 50 percent of the respondents did not know where to start the scouting process^[27]. The third most common problem among those surveyed was a lack of time^[28].

The last two problems in particular can to a large extent be resolved by using external service providers with experience in the field of technology scouting.

Other difficulties include the provision of information and the need to bring all the relevant data together in one location. This is where the scouts' network plays an important role. If it is too small or too homogeneous, in the worst case the decisions made might not be reliable. There is also the problem of finding the proverbial needle in the haystack^[29].

The scouts therefore have four major tasks to complete in order to overcome these challenges: (1) defining the areas of interest, (2) identifying relevant key technologies, (3) evaluating these technologies and (4) managing large amounts of complex data^[30]. This figure gives an overview of the benefits and challenges of technology scouting.

SUMMARY AND FUTURE PROSPECTS

As the world becomes more complex, technology scouting will have an increasingly important role to play in enabling companies to remain profitable in the future. Alongside its many benefits, such as safeguarding companies' market position, optimizing existing portfolios of products and services and recognizing new technologies and trends early, technology scouting also presents a number of challenges. Finding scouts with high-quality networks, devoting sufficient time to the process and identifying the right areas for scouting are the main difficulties that need to be resolved. Although it is possible to use scouts from within a company, a helpful approach is to appoint external consultants who can provide experience, networks and an objective view from outside the organization. When it comes to the future survival of a company, it is important to ensure firstly that technology scouting is used and secondly that the service is provided by experts.

“The most important benefit of technology scouting is the identification of new technologies.”

BENEFITS



- [Trend detection of new technologies](#)
- [Get ahead of the competitors](#)
- [Identification of key patents](#)
- [Identification of “white spots”](#)
- [Optimisation of the portfolio](#)
- [Acquisition of customers and employees](#)

CHALLENGES



- [Integration into the existing business](#)
- [Identification of the right areas](#)
- [Provide sufficient time](#)
- [Access to all relevant data](#)
- [Sufficiently large scouting networks](#)
- [Finding the “needle in the haystack”](#)

Technology Scouting

Improving the market position and competitive advantages

“A helpful approach is to appoint external consultants who can provide experience, networks and an objective view from outside the organization.”

SOURCES

[1] [3] [5] [6] [8] Rohrbeck, R. (2010): Harnessing a network of experts for competitive advantage: technology scouting in the ICT industry, in: R&D Management, Volume 40, Issue 2, pp. 169-180.

[2] [21] [23] [24] Chopra, A. (2020): How Technology Scouting could Help Enhance your Patent Portfolio, URL: <https://www.greyb.com/technology-scouting-help-enhance-patent-portfolio/>, accessed on 03/04/2021.

[4] Gudanowska, A. (2014): Technology mapping as a tool for technology analysis in foresight studies, International Technology Management Conference, Chicago, IL, USA, URL: <https://ieeexplore.ieee.org/document/6918613>, accessed on 03/04/2021.

[7] [10] [11] [13] [15] [17] [19] [20] Rohrbeck, R. (2007): Technology Scouting – a case study on the Deutsche Telekom Laboratories, ISPIIM-Asia Conference, New Delhi, India, URL: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1896150, accessed on 03/03/2021

[9] [12] [14] [16] [18] Reger, G. (2001): Technology Foresight in Companies: From an Indicator to a Network and Process Perspective, in: Technology Analysis and Strategic Management, Volume 13, Issue 4, pp. 533-553.

[22] [25] [26] [29] Tsur, E. (2016): Hunting Innovation: Incorporating Tech Scouting & Corporate Venturing into your Internal Innovation Process, URL: <https://www.qmarkets.net/blog/hunting-innovation-incorporating-tech-scouting-corporate-venturing-into-internal-innovation/>, accessed on 03/04/2021.

[27] Cohen, S. (2018): The Three Biggest Challenges in Scouting New Tech and Emerging Trends, URL: <https://www.linkedin.com/pulse/three-biggest-challenges-scouting-new-tech-emerging-trends-cohen>, accessed on 03/04/2021.

[28] Kirsner, S. (2019): How Big Companies should Scout New Technologies, URL: <https://hbr.org/2019/01/how-big-companies-should-scout-new-technologies>, accessed on 03/04/2021.

[30] Cain, B. (2017): What New Tech Scouting Teams Need to Know, URL: <https://www.wellspring.com/blog/what-new-tech-scouting-teams-need-to-know>, accessed on 03/04/2021.



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