

# SOME ASPECTS REGARDING ON TECHNOLOGICAL VIGILANCE

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**Abstract**— Paper presents some aspects regarding the technological vigilance as a good and efficient instrument used in enterprise evaluation. It is known that the technological vigilance is an effort of an organization in the way to observe, analyze, receive, disseminate and retrieve information about the competitiveness in time.

Technological vigilance means monitoring, observing, checking and updating developments, usually well-defined areas of interest to pursue a particular purpose.

**Keywords**— Technological vigilance, intellectual property, prognosis, economic competitiveness.

## I. INTRODUCTION

THE term intellectual property refers usually to patents, trademarks, know-how etc. They represent a special category of intangible assets because they are unique and their owner is protected by law for unauthorized exploitation, counterfeiting, etc. [8]

Rights and / or benefits exist under the contracts they determine the nature of rights / benefits acquired, the duration of the agreement / benefit etc.

Main advantages due to their ownership are determined by [1]:

- 1) *reducing material costs;*
- 2) *increasing labor productivity (e.g. by increasing the speed of manufacturing);*
- 3) *reducing the cost of transportation, handling, storage,*
- 4) *eliminating or reduce wastage and losses;*
- 5) *increasing the recyclables post-use;*
- 6) *reducing fuel consumption, energy*
- 7) *eliminating or reduce environmental risks and adverse impacts on nature;*
- 8) *increasing the competitiveness;*
- 9) *establishing and maintaining a good image in the market, etc.*

## II. THE ROLE OF TECHNOLOGICAL VIGILANCE AND PROGNOSIS

Ensure technology is a selective method, permanent and organized to gather information from outside the organization, analyze it and convert it into knowledge in order to make decisions with a low hazard risk and be

able to anticipate the changes that looming.

Technological vigilance is a systematic and organized effort of an organization to observe, receive, analyze, disseminate and retrieve punctual and thorough information about certain events in the economic, technological, social or business information are important because they can involve an opportunity or a this threat.

Technological vigilance enables the development and fulfillment of role has intelligence, through appropriate and accurate distribution of information and communication within an organization.

Use information and knowledge in decision-making is the competitive or business intelligence [1].

Also, technological vigilance is both a process and a product, i.e. a set of information on which decisions are made. It thus reversed the traditional trend of using raw data priority -80%, resulting information analysis - 15% and high added value products (analysis + validation) - 5%, redirecting it towards value information products added: technological vigilance means analysis and validation - 55%, information - 25%, 20% raw data.

It helps to increase market competitiveness through a better understanding of the competitive environment and becomes extremely useful for the following reasons:

- 1) *enables continuous information and complex managers on market actors that evolve when vital business rate increases rapidly;*
- 2) *limit information overload; processes considering an analyze of information and determining what is important;*
- 3) *is well adapted to the development of global economy, today, doing business is no longer think in terms of geographical boundaries and its products can support managers in detecting new competitors or those who intend to enter the market;*
- 4) *help to increase market share at the expense of the organization's competitors in areas where current competition is very aggressive;*
- 5) *help the organization to quickly implement policy decisions made under the pressure of public opinion;*
- 6) *help the organization to cope with rapid technological change, monitoring technological change is vital for survival;*

7) *technological innovation can be the difference between success and failure, may increase or decrease in market share, etc.*

### III. TYPOLOGY OF TECHNOLOGICAL VIGILANCE

Technological vigilance can be classified into four types [2]:

- 1) *technological or small steps, which is to be in touch with technology and especially with the technology and the opportunities and threats arising from it;*
- 2) *involving competitive analysis and careful tracking of current and potential competitors and those substitute products;*
- 3) *commercial, where attention is focused on customers and suppliers;*
- 4) *the position in which the observation is focused on the social, legal, and cultural environment that make up the competition.*

### IV. THE RELATIONSHIP STANDBY- TRACKING BENCHMARKS

Tracking parts although placed in relation to watch there is no equivalent or should not be confused with this:

- 1) *tracking is focused on one aspect or action and for a limited time. It is particularly focused effort to achieve an improvement, in many cases, the quality policy of the organization;*
- 2) *watch is a continuous task with strategically importance.*

This relationship does not preclude some complementary aspects such as the ability to detect surveillance which develops business models that deserve to compete. There is also a common feature of both, the industrial research and intelligence.

Tracking parts consists of an assessment, or a project comparison, which aims to identify the best players in the market in terms of certain features or aspects to accurately determine the effort required closing their performance parameters. An analysis plan or reference in tracking parts is a special activity that takes place in a limited time [3].

If the organization wants to improve one of its operations (management / administration, production, logistics, intelligence, economic, marketing, etc.) it can initiate a follow-up study benchmarks the following steps:

- 1) *identify and quantify the parameters that define the operation to be improved operations;*
- 2) *identify and business models that will make their marks prosecuted;*
- 3) *gather information about these businesses mainly by studying the operation, and if possible, quantify production under particular parameters that were identified and how they can be obtained. To facilitate data collection contract with the company reference*

*becomes inevitable. Experience shows that it is the common practice of allowing other companies to explore their business sector of the interest might be mutual;*

- 4) *prepare a plan to achieve performance levels measured in the reference business.*

A competitive technological vigilance is not only to follow strict scientific or technological aspects of information received. Knowledge of market size, potential business vision, social and legal framework, structure and strength of the market and competitive environment is as required [3].

Technological vigilance means monitoring, observing, checking and updating developments, usually well-defined areas of interest to pursue a particular purpose. This means environmental scrutiny of relevant information according to search. This information may belong to a particular technology, where the history of the development of information on its current status and its future prospects are also needed.

However, this vision is not normally sufficient to enable the agreement reached waking activity. For this reason, from another perspective, it can ensure to consider the context of the above-mentioned representing ambient technologies. This is known as contextual supervision, on the assumption that technological change is preceded by changes in other technologies and /or socio- economic sector. This makes possible to detect signals in these areas and helps the organization to react in time.

### V. TECHNOLOGICAL VIGILANCE PERSPECTIVE

If the Technological vigilance is able to anticipate, it will reduce risk in decision making. According to different authors, watch is of perspective or not watch. Therefore, watch is a clear concept but with severe restrictions as shall achieve the following objectives [4]:

- 1) *to report on time, and this is the reason its permanent nature. You can not know a priori how quickly can develop a sector;*
- 2) *to define the scope of attention and investigation. You can not include everything. Innovation risks must be assessed for its potential impact.*

The characteristic element of technological vigilance perspective is to put an accent on the role of being a mainstay in identifying positive and anticipatory responses to a business facing technology. This dimension perspective will come into play in assessing the facts in context and to assess the potential impact business strategy based on forecasting techniques. The horizontal approach and operational action area and not only transverse and vertical approaches are important.

For an organization in which is a competitive management, capable to anticipate change, it can be an advantage to find many possible opportunities or, at least, to react in time; it is necessary to make assessments

and take decisions in a dynamic, exactly at the right time, when faced with the continuous challenge of competition. This requires equipping the organization with appropriate vigilance mechanisms.

In today's complex business reality is that technology covering both dimensions ensure both the competition and the outlook.

Technological vigilance must be focused on certain aspects of a business and its environment, for reasons of cost and time. No business can devote to study and / or to outsource all aspects. As for resources, an organization must monitor according to its strategic objectives.

Systematize the need to ensure a method by allowing an operation in regular monitoring of both the business events that may affect the function and operation of the sleep itself. Organizations should consider their environment, and to apply methods that properly defines and outlines the functions of supervision and guarantee the quality, regularity and homogeneity.

Technological vigilance must organize an elastic structure, supported in an internal organization, decentralized, based on the creation and use of both physical networks and virtual ones, and decision-making at multiple levels, having an efficiently and feedback systems.

Before starting any activity from wakefulness to consider basic aspects of the approach to a lookout technological perspective:

- 1) *which is subject to supervision?*
- 2) *what should I watch?*
- 3) *what kind of information should we look?*
- 4) *where can we find?*
- 5) *how should we communicate?*
- 6) *to whom we target?*
- 7) *what means will we use?*

You can monitor the following aspects:

- 1) *Technology*
  - a) scientific and technological progress, the result of fundamental and applied investigations;
  - b) goods and services;
  - c) production processes;
  - d) materials, the conversion;
  - e) technology and information systems.

An organization that operates in an international business environment needs to know what and with whom they work.

In analyzing technologies and products substitute, organization must know the role fulfilled by the product, processes of transformation suffered their design, classification of related products and / or complementary, etc.

In analyzing the aspects of research and development it must be known: the investment in R&D, the number of engineers and researchers, technical and scientific publications and patents of competitors.

- 2) *Competitors:*

An analysis and monitoring current and potential competitors means to know the allocation of investments, products, distribution channels, waiting time, customer type and level of satisfaction, type of organization, financial, etc.

It is important to know exactly the value chain of the industry, during this whole situation for business and its strength in the value chain.

- 3) *Business:*

- a) market;
- b) customers, their evolving needs, solvency, etc.
- c) suppliers, launching a new strategy to their production;
- d) the labor force in this sector and value chain;

- 4) *Position:*

- a) legislation and regulations, tariff barriers, etc.
- b) environment and development in the care of it;
- c) culture: behind every decision are people, policy, sociology, etc.

The rapid progress of science and especially the range of increasingly shorter transposing them into an application of scientific discoveries lead to more significant changes in technology.

For information regarding the future of an industrial area, a technology or a product requires developing technological forecasting studies.

## VI. PROGNOSIS TECHNOLOGY

The methods used in technologic prognosis are based on the systematization of knowledge about the future to intervene quickly in practice. In the literature it is considered that there are over 100 methods, but only 30 are most commonly applied, like [4]:

- 1) *Brainstorming Method*

It is a method group, which is presented in different forms:

- a) 'B' singles - as it starts from the assumption that a large number of ideas will always find some good ideas;
- b) discussion group method (buzz group) - which aims to reach a general agreement between about 6 people ;
- c) method "operational creativity" that only the group leader knows precisely the problem and organizes the discussion in order to obtain a single solution.

- 2) *Delphi Method*

Delphi method aims are to obtain the opinion of a panel of experts so as to reduce the parties disagree. Communicating with people is participating by mail to remove elements of persuasion and the effects of the majority opinion.

- 3) *Extrapolation of Trends Method*

This method is based on the premise that the rate of change observed in the past will continue. From the mathematical point of view consists in extending the time of service time. After their complexity can be distinguished:

- a) linear extrapolation;
- b) quadratic extrapolation;
- c) extrapolation in the form of 'S'.

This is a quantitative method that enables the use of a mathematical model and data processing using computers.

#### 4) *Elaborate Scenarios Method*

This method tries to establish a logical sequence of events to show how this situation will evolve in the next one.

#### 5) *MARSAN Method*

The Method of Analysis, Research and Selection of New Activities investigates developments repeatable and adaptable in enterprise. The method uses 49 factors of analysis to select the solution (product, technology).

Weights rating of the 49 factors are processed numerically calculating the coefficients of concordance and discordance for different products.

#### 6) *Study Application Method*

This technique is used in order to meet certain needs, drive for innovation is caused by knowledge of potential applications. Knowing market demands is a complex analyzes: demographic, sociological, technological, etc.

#### 7) *Method of Logistic Curves*

This method means to know the evolution of technology, also products, following the same trajectory, described mathematically by a logistic function type. On logistic curve there are several areas:

- a) the initiation, when the technology is new;
- b) the development the technology is in full swing and becomes necessary;
- c) the cap, the technology has reached its limits;
- d) the extinction, the technology is eliminated.

Important is to establish a logistic curve for each period.

#### 8) *Morphological Method*

It consists in breaking down the structure studied in several levels and each level layout of all the possibilities of achievement.

Probabilistic assessment consists [5] of a relatively high degree of certainty of technological future developments. The main forecast is to provide basic information useful for making strategic decisions on the development or restriction of production. In developing forecasts using various methods and techniques, described in the literature, which differ primarily by the time horizon considered. The time horizon always affects accuracy: the more time horizon increases, the accuracy decreases. Short-term forecasts are based on an extrapolation of the data in the past to the future. Medium and long term forecasts cover the areas of maximum interest of a company or of a state. Prognosis is not really on the past because of numerous factors and needs intuition.

## VII. CONCLUSION

Technology transfer is an essential component of innovation. In a concise definition, innovation is "the production, assimilation and exploitation of novelty in the successful economic and social spheres." Innovation is usually an activity that results in a product (good or service) or process new or significantly improved

launched in his own company by natural or legal persons, who had innovative contributions [6].

In the center of the innovation process are companies because the economic benefit of a successful exploitation of novelty is received by them and the final effect of innovation policy should extend the companies: their policies, their creative and productive capacities, to increase competitiveness and their operating environment. Innovation is an essential tool for companies to create competitive advantage and deliver superior value to customers.

Technology transfer shall designate an economic relationship between two or more companies, which stretches over a long period and has the effect to create a community of interests, including: the granting of licenses and the provision of materials, providing technologies, exchanging information about techniques and technologies used, production and marketing results.

Technology transfer refers to the dissemination of information, knowledge transfer, training, advice on innovative products and services [7].

In this context the role of technological watch/vigilance and prognosis becomes an activity of great importance, being promoted / performed by

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