



DEVELOPMENT OF A COLLABORATIVE PLATFORM FOR THE EXECUTION OF TECHNOLOGY WATCH AND COMPETITIVE INTELLIGENCE ACTIVITIES IN FURNITURE AND WOOD SECTOR COMPANIES

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Abstract

The aim of this article is to prove that Technology Watch and Competitive Intelligence (TW/CI), when related to information management, can have a positive impact on the different processes linked to innovation management, the development of new products and decision-making in the furniture sector companies. For this purpose, the results of the HABIWATCHING Project will be described. Through this project, the collaborative platform for the execution of Technology Watch and Competitive Intelligence (TW/CI) activities for the Habitat Cluster in Murcia has been implemented.

Key words: *Technology Watch; Competitive Intelligence; Innovation; Knowledge, VINCI*

1. INTRODUCTION

The high competitiveness of the current market forces organisations to be constantly informed of everything that happens around, not exclusively of technological or sector-related news. Being able to know the intentions of competitors in the market framework gives a company the knowledge about a large number of data related to the products and services of these competitors. Under these circumstances, the company informed is allowed to develop a competitive strategy from a very advantageous position.

To obtain this information, Technology Watch (TW) is the organised, selective and permanent process that allows us to gather information from outside and from the organisation itself, and select, analyse, disseminate and communicate this data, to make decisions with less risk and to be able to anticipate changes. According to the research carried out in the thesis on which this article is based, and the bibliographic study accomplished, we can affirm that technology watch is closely related to the management of innovation and the company's strategy (Aguirre, 2015; Rey Vázquez, 2006).

Moreover, according to Leonard Fuld, the fact that the business executive has a high "Competitive Intelligence" about their direct competitors when making decisions will be an added value and will be very advantageous to the organization: "Knowing how, where and why the competitor uses their money is a shortcut in the race to improve the competitive strategy. The costs state how much can be invested in research and development, marketing, advertising campaigns, incentives, etc." (Fuld, 2006).

Although accessing information about competitors may seem easy for an organisation nowadays, the reality is that getting the necessary and correct information is becoming increasingly complicated, diffuse, delicate and even overwhelming. That is why performing a correct Competitive Intelligence activity is essential for companies: "Knowing how to find that information, use it for one's own benefit and in time to get ahead of the competitors' practices is the key to success for every forward-looking company." (Fuld, 2006)

On the basis of the above, we can affirm that Technology Watch is an indispensable tool for competitiveness in any kind of organisation whether it is public or private, industrial or service company, or a research organisation.

1.1 USE OF TECHNOLOGY WATCH IN FURNITURE SECTOR COMPANIES.

Traditionally, the furniture sector has been a sector that has followed the trends of fashion, particularly in the case of the subsector of upholstered furniture (sofas, chairs and armchairs), owing to the obvious use of fabrics and leather to cover all or part of the resulting products. Consequently, SMEs are starting to realise **the importance of monitoring the business environment** to learn about the state-of-the-art trends in the months to come.

However, according to the Spanish National Institute of Statistics (INE) statistics, which can be seen in Figure 1, we can say that, from 2008 to 2016, Spanish furniture-related companies reduced their TW/CI activities leading to innovate their creative processes. In order to know current data on the use of Technology Watch tools in the furniture sector at a national level, we have consulted the Survey on Innovation in Spanish Companies, which is carried out biannually by the INE ¹. Although the decline is not too significant, we think that this situation has been caused by the global crisis, which has hit Spain in recent years, especially because of its dependence on sectors such as construction or financial institution.

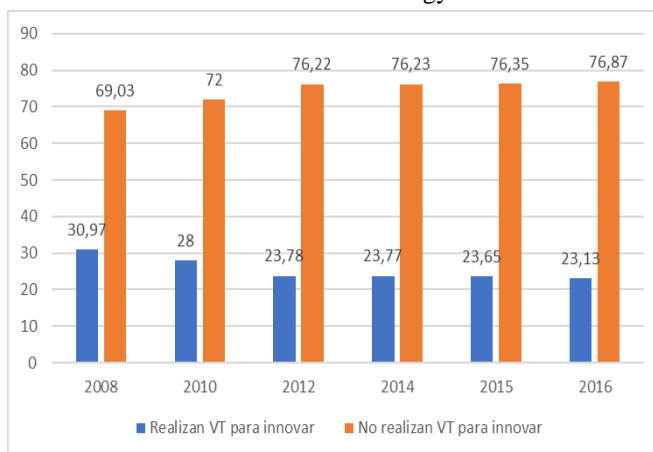


Figure 1 Companies that carried out TW/CI activities (comparative % 2008-2016).

¹www.ine.es In this survey, the INE provides information on the structure of the innovation process (R&D/other innovative activities) and shows the relationships between this process and the companies' technological strategy, the factors that facilitate (or hinder) their ability to innovate and the economic performance of companies. Although the survey does not focus specifically on TW/CI activities carried out by companies, it does include data on the systematic use of information on the environment, products, competitors, etc. within companies' innovation processes.

If we observe the results, it calls our attention that the Technology Watch activities carried out by the companies during 2016 decreased 2.20% in contrast with 2015. However, the expenditure on technology innovation in 2016 increased compared to the previous year. "The technological innovation expenditure reached 13,857,481 million euros in 2016, with an increase of 1.34% compared to the previous year" (INE, 2018).

On the one hand, we remark that in 2016, 52.97% of innovation companies considered that the internal information sources (within the company or group of companies) were the most important ones in order to carry out technological innovation projects. On the other hand, 43.45% of the innovation companies affirmed that the sources of market information (suppliers, customers, competitors, consultants, etc.) were the most relevant ones in the RDI process.

Finally, and according to the data shown in Table 13, we highlight that the tendency of furniture sector companies to consume information from Technology Centres increased until 2014 and decreased again in 2016.

The interest in attending professional events such as fairs and congresses, as well as in the analysis of scientific and technical information (articles, books, etc.), has been significantly reduced.

Table 1 Sources used by companies during the last 10 years.

	2016	2014	2012	2010	2008
Number of companies that consult information for their innovative activity	23.13	23.77	23.78	28	30.97
Types of sources used by companies					
Internal Source of the company	33.94	32.38	33.68	32.79	31.28
Sources from the environment: information about competitors, collaborators, suppliers, ICTs, etc.	43.57	43.62	43.90	45.36	46.59
Information prepared by institutional sources (universities, international organisations and reports)	10.24	11.31	10.09	8.92	7.85
Technological Centres	3.38	4.20	3.74	3.21	2.74
Other sources (Conferences, scientific journals, professional associations)	12.24	12.70	12.32	12.93	14.27
Scientific Information	3.54	3.40	3.57	3.46	3.84
Fairs and conferences	5.54	5.60	5.04	5.5	6.23

2. MATERIALS AND METHODS

As above mentioned, when it comes to watching tendencies (trends, materials, etc.), the furniture sector is always in movement, which has favoured SMEs with a special sensibility SMEs towards **the importance of monitoring the environment**. This is done in order to pick up new trends, technology and design wise, which are going to be important in the following months.

On the other hand, the technological centre CETEM and Murcia's furniture cluster AMUEBLA, have **pioneered the implementation of RDI management systems**, certifying their own system on April 2008, under the then experimental UNE 166.002 standard. Within this management system, Technology Watch and Competitive Intelligence stand out as sources of information for processes such as External Analysis and Idea Generation for RDI projects.

These two facts enabled an important watch culture growth thanks to which a collaborative Technology Watch tool called VINCI has been developed. Using the advantages of **digitalisation of information** through the internet, this tool has introduced technological contents in companies, which has provided them with: (1) the development of innovation projects according to its needs and (2) the creation of economies of scale in the production of valuable information for SMEs.

VINCI was developed freely for Yecla's furniture cluster companies thanks to the HabiWatching² project, based on a Cloud environment. The result has been a **collaborative platform** that enables the exchange of knowledge and information between SMEs, knowledge providers and, ultimately, all agents related to the cluster. Its objective is to generate more and better innovation projects more in line with the current state of technology.

2.1. METHODS FOR INCORPORATING COMPANIES TO VINCI

Those companies that had not systematised their watch tasks before were given specific advice by the cluster in order to define their own TW systems. For this purpose, the method for technology watch and competitive intelligence management developed by CETEM was taken as a basis. It consists of the following steps:

1. Planning and systematising tasks. Definers of how TW/CI takes place on a day-to-day basis, as well as relevant topics and sources for the watch.
2. Training. To carry out TW/CI activities, training the staff from each organisation that is going to participate will be needed. This step was developed on the staff of the organisations that took part in the pilot experience. Once the platform has been launched and outside the project, the rest of the staff of the cluster organisations has also been trained.
3. Data search and recovery. This step is already part of the TW/CI process and it is continually developed in the VINCI platform. Both CETEM and AMUEBLA play a key role in the data search and recovery process.
4. Data processing - recovering data in the TW/CI system and filing it in an easy-to-recover way. Thanks to VINCI and CETEM technicians' know-how, the process of filtering data can be optimised and adapted to the language of the industry.
5. Data analysis. During this step, data is analysed bearing one's target always in mind. In this case, our target is to identify opportunities regarding new products or improved processes thanks to technological knowledge and to apply them to the cluster's companies.
6. Data spreading - making the analysed data reach its "users", in this case the cluster's companies. As part of an ongoing process, it was tried out once in the pilot experience during the development of the HabiWatching project. Nonetheless, it is being maintained nowadays since it is considered a fundamental part of the process.
7. Evolution, system and results. The last step is a continuous analysis of the TW/CI system to test its effectiveness and efficiency.

3. RESULTS

The main result obtained during this research is the implementation of the collaborative platform VINCI to perform Technology Watch and Competitive Intelligence (TW/CI) tasks for the Hábitat Cluster in Murcia. VINCI has been validated as a collaborative platform where the results of TW/CI are shared by the cluster's technological agents. As the main result of this research, the companies within the cluster are now part of VINCI, a platform that is mostly based on the knowledge and technology providers (technological centres, cluster associations, universities, etc.). In this platform, the SMEs also act as "antennae" by including data related to the market and to business reality. VINCI has been validated as a collaborative platform where the results of TW/CI are shared by the cluster's technological agents.

The following results have also been obtained:

- A TW/CI service is now accessible for all the SMEs of the AMUEBLA cluster through the VINCI software.
- The SMEs industries have become more acquainted with technology through a practical and simple method.
- The first IDEAS on collaborative innovation projects for AMUEBLA companies have been developed.
- The amount of SMEs from the habitat cluster in Murcia taking part in innovation projects has increased.

The top screenshot shows the 'Ideas' section of the VINCI software. It features a table with columns: Factor, Fecha, Propone, Fuente, Descripción, and Viable. The table contains three rows of ideas, each with a status icon (a circle with a plus sign) and a 'Viable' checkbox.

Factor	Fecha	Propone	Fuente	Descripción	Viable
ELECTRONICA	12/06/2018	Santa, Lupe	http://www.decoravis.com/gap	Revisarcomoson de paredes en madera a las que se puede encharcar los	Yes
MATERIALES	12/06/2018	Santa, Lupe		Nano-Eco-Inteligente Materiales	No
INDUSTRIA	12/06/2018	Puche, Blanca		Control de calidad de Mueble mediante combinación Robot y Visión Art.	No
ELECTRONICA	12/06/2018	Santa, Lupe	http://www.proyectos.es/No	MODULO DE EXTERIOR DIFUSOR DEL AIRE	No

The bottom screenshot shows the 'Resultados' section of the VINCI software. It displays a list of search results with columns for 'Publicación' and 'Ver'. Each result includes a status icon, a checkbox, and a brief description of the publication.

Publicación	Ver
Trabaja	Yes
Créditos con rasgos de espumas extrudidas	01/01/2018 13:00:00
ELECTRONIC COMPONENT AND MATERIAL FOR SUSTAINABLE REMOVAL OF WASTE PRODUCTS AND GENERATION OF CONSUMABLES	01/02/2018 13:00:00
China busca la primera compañía para Flex	02/02/2018 13:00:00
China busca la primera compañía para Flex	02/02/2018 13:00:00
¿Cuánto vale todo los recursos del sector #HabiFlix? Te lo vamos a dar en 5 líneas	02/02/2018 13:00:00
#HabiFlix es el club de innovación que se adapta a tu forma de pensar en función de tu actividad y tus conexiones personalizadas	02/02/2018 13:41:46
El pasado martes en el marco de #HabiFlix (evento de marzo #HabiFlix) y en una sesión PA, S.A.D. ¿A qué se refiere saber más?	02/02/2018 14:24:48
Una generación de club de innovación #HabiFlix que se adapta a tu actividad y tus conexiones personalizadas	02/02/2018 15:06:51
Flex comercializada un club de innovación #HabiFlix	02/02/2018 11:14:51
China busca la primera compañía para Flex	02/02/2018 10:02:48
Un buen decorear es clave para estar bien en el mundo, en #HabiFlix #HabiFlix, nos cuentan cómo #HabiFlix puede ayudar	02/02/2018 10:20:42
China busca la primera compañía para Flex	02/02/2018 10:02:48
#HabiFlix, la primera cámara inteligente que aprende de tus sueños	02/02/2018 17:39:14
RevisarComoson #HabiFlix, la primera cámara inteligente que aprende de tus sueños	02/02/2018 17:43:06
#HabiFlix, la primera cámara inteligente que aprende de tus sueños	02/02/2018 18:21:05
#HabiFlix, la primera cámara inteligente que aprende de tus sueños	02/02/2018 18:06:07
Flex y su nueva tecnología #HabiFlix con la agencia creativa China y el fotógrafo Stuart Pearce bajo la producción de Silvia Guillén	12/02/2018 13:57:10
Flex	01/01/2018 13:00:00

4. CONCLUSION

Thanks to implementing the HabiWatching project we have proven that, taking TW/CI tasks as a basis, companies obtain data that, once analysed, can be converted in valuable information for companies (either for themselves or for technological partners, in this case AMUEBLA or CETEM). The cluster has trained SMEs to **learn and use the data to create innovation projects** to improve their industrial competitiveness.

Moreover, on the research basis of this project, we can confirm that companies use the result of the technology watch and competitive intelligence processes as a strategic input for **decision-making** (basic for preparing a SWOT or other similar methods). We can see that the data gathered through VINCI, especially the data that comes from sectoral information resources, is useful to obtain information on the environment outside the organisation. In other words, information on potential threats and opportunities for which companies must be prepared to act as soon as possible.

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