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Overview of Activities on the Internet Devoted to Casting Technology

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Abstract

Article present various forms of transfer of information available on the Internet. An attempt was made to show the possibility of such a selection of the knowledge sources that, taking into account user preferences, would arouse his interest, showing in parallel the intended substantive content.

This commitment is shown in the context of the current assumptions of building a platform dedicated to support the needs of production processes in foundry and metallurgy.

Keywords: Knowledge Components, Platform Dedicated to Support The Needs of Production Processes in Foundry and Metallurgy, Social Media, Searching on The Internet for Information about Metalcasting, The Knowledge nn The Area of Casting Technology

1. Introduction

To begin the work the main aim of which is establishing a system platform with the task of creating and sharing the knowledge in the area of casting technology, a survey of potential users (industry, Polish and international scientific community) was conducted. The interview had the form of questionnaires and interviews with representatives of industry and research centres. The surveys were related with an area of sharing the available knowledge components. From the graph shown in Figure 1 it is clear that professionals reach most often for multimedia resources in the form of photographs and simulations, also for diagrams and visuals in the form of charts and graphs. Such information can be obtain from various sources, one such source being undoubtedly the Internet.
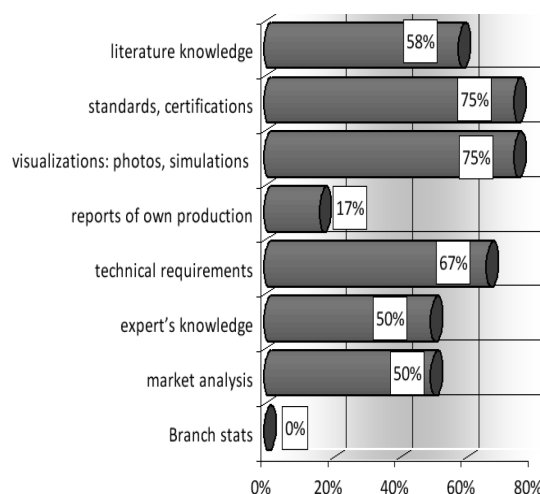

Fig. 1. Preferences on the types of knowledge shared
[source own]

A large amount of information and its availability on the Internet require from the users careful selection of content, examined in the context of the possibilities of its practical use and compilation. Searching on the Internet for information about metalcasting, attention should be paid not only to the information important for the foundrymen and included on the websites of companies [1], [1] but also to other forms of knowledge offered by various networking services. For the purpose of building a knowledge system inspired by the user to serve the needs of the metal industry [3], [3], [5], studies were carried out on the availability on the Internet of the information in the form of videos, blogs, online fora, social networking services concerning metallurgy, and metalcasting – in particular. These are the online tools that are becoming more and more popular and replace or run in parallel with the information posted on the network on the web sites. These sites are not only a source where one can find the required information, but also where one can post this type of information. Searches were carried out both in Polish and English. Generally, compared with very popular thematic groups like e.g. cosmetics, cars, online shops, and computers, the information on metallurgy is rather scarce, but it is worth paying attention to the data that are available and develop a methodology for their acquisition.

2. Forms of activity

2.1. Materials in the form of videos

Most materials that can be used were found on the websites posting videos. The most popular of these is of course YouTube. It is a web service (created in February 2005), which allows free posting and watching of videos. The FLV technology is used to display wide selection of movies posted by users (so called user-generated content), such as movie or TV trailers, shows, telediscs, and amateur works: video blogs, own short videos, virtual process simulations. The majority of materials were put on YouTube by private persons, but many companies, various institutions and organisations use this website to share with other users some of their materials as part of the affiliate programme. Unregistered users can only watch videos, while registered users are able to place an unlimited number of own presentations. Presentations of this type can be used to show off some important events and achievements of the company where a short video information was recorded. It is also the site where short training videos can be placed, to show how to perform certain operations. This type of communication is particularly valuable in situations where verbal description is not sufficient, or textual description is too difficult and requires too much effort from the person for whom such message has been created. In foundry industry there are many situations of this type in which a training and information-rendering film will make the whole job much easier.

Videos of precisely this type have been posted on this website. They are placed there by institutions such as, among others, Foundry Research Institute in Cracow or by private individuals. Drawings below show examples of such videos. They are of a promotional nature, on the one hand, promoting a company, e.g. the aforementioned Foundry Research Institute in Cracow, or they are of a narrative character telling a story (e.g. the film telling about a technique of making bronze castings - Figure 2), or mov-

ies advertising company's products or technology; less common are the movies made by amateurs, nonetheless they have quite a lot to show in a given topic, too.
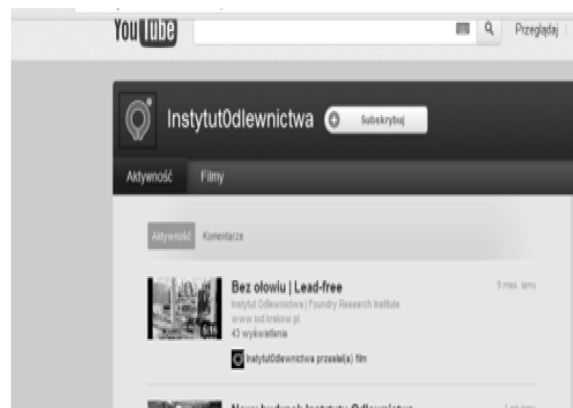

Fig. 2. Examples of videos posted on YouTube by Foundry Research Institute *[10 May 2012]*

Fig. 3. Advertising film about bronze casting [http://www.youtube.com/watch?v=Mm6jiTqoh08]
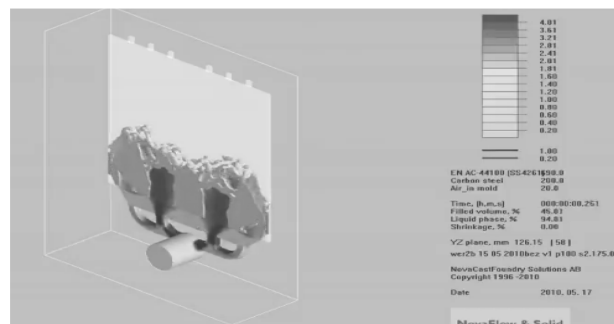

Fig. 4. An example of simulation placed on the website

Films on similar subjects are also placed outside this portal. In addition to films similar in content to those listed above, various

simulations derived from a variety of programmes are also found on YouTube portal.

It has to be remembered that materials of this type are still being searched based on keywords. No browser has been created as yet to find "the content of the film" solely on the basis of an image.

If you search for materials of this type, the following procedure seems to be a good approach:

1. Choosing the right web portal (in the case under discussion it is YouTube).

2. Then the following two different steps can be taken:

   a) Enter to the browser operating this portal the keyword what subject of the film is to be found, and examine (manually) the video content.

   b) Enter the name of the user who is known to us, and publishes movies in this field. This type of browsing requires a database containing information about users and materials that have already been published. Continue browsing and evaluation of the materials found.

3. Saving links to the content found or, if the consent of the authors is obtained, downloading them to the database.

4. If only links are saved, checking from time to time whether the data that is stored at a given address has not changed, and updating in the case of changes.

2.2. Blogs

Generally, four main types of content can be posted on the blog:

1. Text

Writing interesting text is the best way for effective communication of a message. Quite important is marking of the text for positioning in search engines.

2. Graphics

Photos, presentations, screenshots - all this greatly enriches our message, inviting people for whom this form of communication is the most meaningful to visit the blog. In this case, special attention should be paid to the quality of the presented images, proper resolution – in particular (nothing is so discouraging and irritating as an unreadable screenshot which has been meant to prompt us how to perform a given operation).

3. Audio

Sound files (downloaded or played directly on the blog) are also an interesting way to build customer relationships. Eye-catching

sound programme should not last longer than 8 minutes. Longer guides should be divided into sections of this duration.

4. Video

With increasing speed of the Internet connections, it is the form of communication which is becoming increasingly popular. Content of this type is usually placed on YouTube free of charge and via YouTube - on the blog. Proper installation, and sound and image quality are essential to attract many customers. It is also good to present even the most serious content in a "cool" way and with a bit of humour. Videos can also be a good tool for viral marketing on the Internet.

5. Newsletter and autoresponder

What is newsletter? As the name indicates, it is a letter with news, or information sent periodically to our customers, who typically need to register with the system using an appropriate form.

The main advantage of such systems is the possibility to send a series of letters prepared in advance at predetermined time intervals. The use of such a tool is very versatile. These could be e.g. mailing courses about products, services, or other - interesting to our potential customer - subjects (various guides). This allows us at a relatively low amount of effort to maintain continuous contact with the customer, building a relationship to promote our products and services. Figure 6 shows possibilities offered by the use of ready tools to create an expert blog. The posted content is not only text but also multimedia files and links to social networking sites.

6. Examples of the use of multiple autoresponder:
— Information about our products and services,
— Email course (free, or enhanced with fee required),
— Order handling,
— Integration with newsletter,
— Post-sales service and cross selling.

2.3. Thematic blogs

In this area, blogs have been found, which can be divided into the following groups:

Blogs whose subject matter is devoted to the problems of metallurgy and metalcasting are a useful source of information for process engineers when gaining knowledge about the techniques of making various types of finished castings other than those in which they have been up to now specialised.
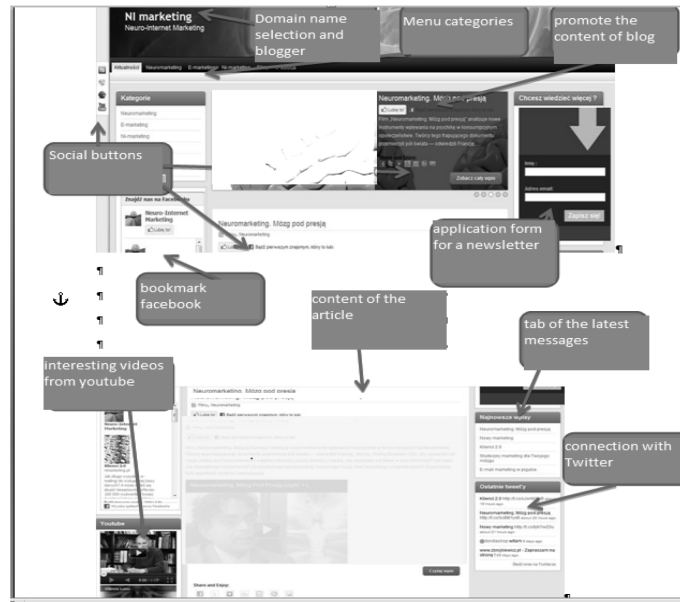
Fig. 5. Ways to publish information on the blog. (Source: P. Zbrojkiewicz, diploma thesis, promoter Dorota Wilk-Kołodziejczyk)

If the company has a blog of this type on its site, it is a form of communication about the manufacture of a given product. When conducting this type of promotion, it is worth making both newsletter and autoresponder available.

Fig. 6. An example of the blog in which the leading theme is metallurgy and metalcasting

Fig. 7. An example of the information that can be regarded as a blog run by a manufacturing plant

It often happens so that the main theme of the blog is quite different, and the subject we are interested in (metallurgy, metalcasting), is touched only casually. Figure 8 is the example of such a blog, where the leading theme is Archaeology of the East, and casting is the subject of one single entry only.

This type of publications opens the possibility of reaching a wider audience outside the industry. It can be used to promote a brand or product, or to improve awareness. It may cause that potential customers will attach importance to buying a product from the foundry X and not Y.

As studies showed, a great impact on the interest of leading bloggers in blogs on a given subject has the fact that authors focus their attention on the content of less general character but addressed to a specific audience. It is a kind of signpost for potential authors of blogs on foundry. The blog is, undoubtedly, a tool that has already found its permanent place in the Internet users' awareness and in every area becomes the place where information is eagerly searched for.
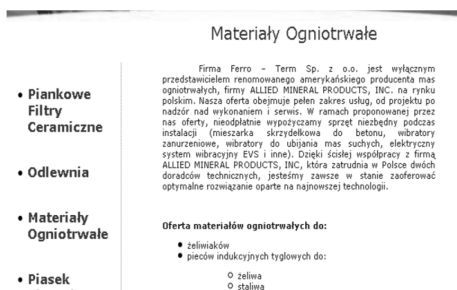

Fig. 8. Blog on archaeology

2.4. Other internet sources of information

Social portals

Social portals are becoming increasingly popular. A specific feature of these portals is that registered users can create networks and groups to share information and photos and use applications that are owned by the portal. One can use applications on social networking sites to promote a company or a product. This is also a way of getting information about the company or product. This may be the information of an interactive character, completed with multimedia files, allowing contact with the company not only via telephone but also via e-mail and chat. The most popular social portals used by sectoral business companies include Facebook, Twitter and Goldenline. Figure 10 shows an example of promotional casting-related activities as displayed on Twitter.

Fig. 10. An example of the Foundry Research Institute promotion on a Facebook social networking service.
Source: [http://pl-pl.facebook.com/pages/Instytut-Odlewnictwa-Foundry-Research-Institute]

Fig. 11. An example of the promotion on GoldenLine social portal through the person of the foundry owner
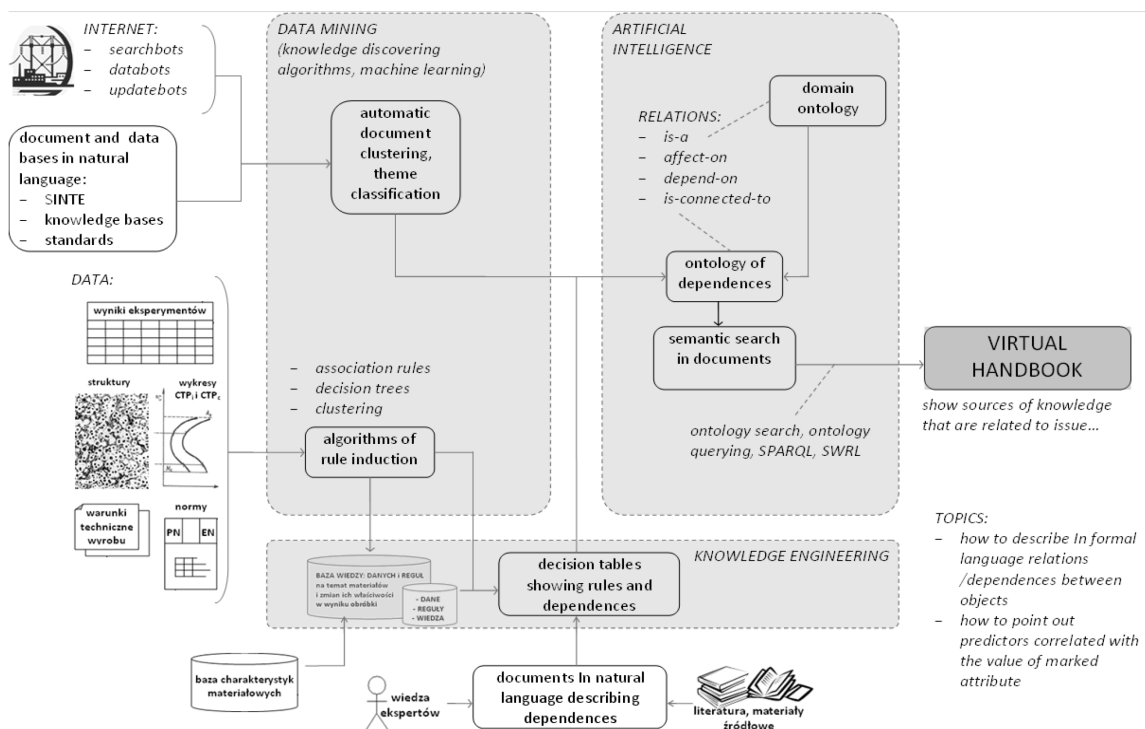
Fig. 9. Metalcasting-related information displayed on Twitter

Fig. 12. Functionality specification for the knowledge module „Virtual guide"

3.   Use of knowledge in the System

The concept of a platform constructed to share the knowledge on casting technologies assumes that it should include all major solutions provided in the course of the previous work on computer-aided manufacturing processes, and at the same time be enriched with new modules and new functionalities and targeted at meeting the user's preferences using new trends and opportunities that arise as a result of the development of computer-based methods and technologies [3], [3].

Consequently, the platform is a multi-module structure, where individual modules can operate independently, while the results of their operation are subject (if necessary) to integration.

The degree and manner of this integration depend mainly on the scenarios of actions taken by the user (within the system used in an interactive mode). Among the existing modules (available on the Internet), attention deserve systems such as Infocast (including databases on publications, standards, and catalogues) and Castexpert, intended for the diagnosis of casting defects assisted with the knowledge presented in the form of multimedia) [3].

One of such modules is a virtual guide, whose schematic diagram is shown in Figure 12. It operates as a kind of clause, combining the functionality of other modules in the platform. Using this tool, the user gets a general idea on what kind of knowledge is provided by the platform, and therefore can determine what variant of the scenario will lead him to the solution of a given problem.

Currently, all multimedia presentations on the Internet are searched in a manner similar to web pages, that is, using a set of keywords going through a description of the available material. Therefore, to obtain the required materials in the system, a module of exploration can be successfully applied, which is a key part of the proposed system. This module is made to determine the vector model of individual pages, to design the pattern, and to evaluate the pages next.

The vector model is defined as a set of spoken and written words with appropriate weights, determining frequency of their occurrence on a given page. Then, using the selected metrics (e.g. Euclidean distance), vectors W designated for subsequent pages are compared with thus determined "master" pattern (W*). The page is classified as "hit" if the following condition is satisfied:

$$\lfloor W - W^* \rfloor \leq \epsilon \tag{1}$$

Where ϵ − the set point value of the forecast

4.   Summary

The aim of the article was to present various forms of transfer of information available on the Internet. An attempt was made to show the possibility of such a selection of the knowledge sources that, taking into account user preferences, would arouse his interest, showing in parallel the intended substantive content.

This commitment is shown in the context of the current assumptions of building a platform dedicated to support the needs of production processes in foundry and metallurgy.

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