



TECHNOLOGICAL TRANSFER POSSIBILITIES FOR THE INTEGRATION OF ROMANIAN RESEARCH IN EUROPEAN AREA

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Abstract: *The inquiry main characteristic is that people provide the information, thus severely limiting its use (eg: aspects relating to the people providing the information). The inquiry elaboration involves a rigorous methodology, in order to compensate the lack of control (manipulation) over the variables. In this paper, an inquiry was elaborated for the project “The convergence of the valorisation technologies for the useful mineral substances in effluents, in order to integrate the Romanian research in the integration European area”, contract No. 248, financed within the Excellence Research Program, Module III, where research teams from CTTIE - Bucharest, ICPE S.A., UPB - CASM and AMCSIT – “Politehnica” are involved. This inquiry is designed for universities, research institutes, enterprises and more.*

Key words: *inquiry, European research area, enterprises, research institutes, universities.*

1. INTRODUCTION

The inquiry (I) is a research method embedding techniques, procedures and tools to collect information, has a non-experimental aspect, while the researcher has a relatively low control over the analyzed variables.

While elaborating the inquiry, a number of aspects need to be taken into consideration:

- presenting the product, technology, service, etc. [6];
- elaborating the questionnaire, by defining the questions;
- customizing the questionnaire;
- defining the respondents [8];
- defining the methods to invite the respondents;
- transmitting the questionnaire to the respondents;
- analysing the results.

In a large number of cases, the inquiry does not simply focus on the techniques, procedures and tools to collect information (as for the survey) but, for a better understanding, the inquiry methods are combined with other research techniques, such as the scientific observation or the documentary and content analysis [1].

The inquiry has a greater value, as it represents a scientific method of investigation, often the only one available.

However, one must consider that numerous errors may occur, some due to the faulty procedures, others due to the respondents' lack of cooperation.

2. OBJECTIVES

The inquiry was aimed to identify the needs and interests of the potential *collaborators in the research – development – innovation activity* in order to promote the ecologic recovery separation technologies of the minerals in the effluents.

Thus, the inquiry focused on aspects concerning:

- the importance of technologies;
- the need for implementation;

- the availability to contribute to implementation;
- the impact of technologies;
- the use of technologies;
- the participation as research partners, raw materials suppliers, etc.;
- the experience in valorising the useful substances in effluents;
- collaborations in this particular domain;
- problems with the heavy metals content effluents and
- specific company information (market segment, company products, nature of goods, number of employees) [4, 5].

3. ELABORATING THE INQUIRY

3.1. Technologies presentation

Taken into account the previously defined objectives, two specific technologies of valorising the useful minerals in the effluents were taken into consideration:

- the ionic flotation and;
- the separation with liquid membranes for which the presentation sheets were elaborated.

The presentation sheets were customized by using the logos of all the partners involved in the project.

3.2. Questionnaire elaboration

As far as the questions were defined, from the four possible types: closed questions – single answer, multiple answers; matrix questions – single and multiple answers; open questions – free answer, numerical answer, etc.; ranking questions, for the inquiry elaboration, closed questions, but also matrix questions were used.

3.3. Defining the types of respondents

After the elaboration and customizing of the inquiry, the types of respondents were defined (Table 1), given the project particularities and its objectives. The enterprises were selected from the AMCSIT – Politehnica personal database [7].

Table 1

Elaboration and customization of the inquiry

No. crt.	The institution legal name
1.	Institutul de Cercetări Metalurgice ICEM SA București
2.	Universitatea Tehnică Gheorghe Asachi Iași
3.	Institutul Național de Cercetare Dezvoltare pentru Inginerie Electrică
4.	Institutul Național de Cercetare Dezvoltare pentru Științe Biologice București
5.	Institutul de Chimie Raluca Ripan Cluj Napoca
6.	Institutul Național de Cercetare Dezvoltare pentru Utilaj Petrolier IPCUP Ploiești
7.	Institutul Național de Ciment CEPROCIM SA București
8.	Institutul Național de Cercetare Dezvoltare Turbomotoare COMOTI București
9.	Institutul de Cercetare pentru Rafinării și Petrochimie ICERP SA Ploiești
10.	Institutul Național de Cercetare Dezvoltare pentru Textile și Pielărie INCDTP București
11.	ICPET ECO SA
12.	Institutul de Proiectare pentru Sectoare Calde IPSC SA București
13.	Institutul Național de Cercetare Dezvoltare și Încercări pentru Electrotehnică ICMET Craiova
14.	Universitatea din Craiova
15.	Institutul Național de Cercetare Dezvoltare pentru Energie ICEMENERG București
16.	Institutul Național de Cercetare Dezvoltare pentru Geologie și GeoEcologie Marină GEOECOMAR București
17.	Universitatea Tehnică din Cluj-Napoca
18.	Institutul de Cercetări Pielărie Încălțăminte CERPI București
19.	Institutul Național de Cercetare Dezvoltare pentru Metale și Resurse Radioactive – ICPMRR București
20.	Institutul de Cercetări pentru Echipamente și Tehnologii în Construcții
21.	Institutul de Cercetare Proiectare Utilaj Metalurgic și Prese SC PRESUM PROIECT SA Iași
22.	ICPE SA Bistrița
23.	Institutul de Cercetări Fibre Sintetice SC ICEFS SA Săvinești
24.	Institutul de Cercetări și Amenajări Silvice București
25.	Institutul de Metale Neferoase și Rare IMNR SA București
26.	Institutul Național de Cercetare Dezvoltare pentru Tehnologii Criogenice și Izotopice ICSI Râmnicu Vâlcea
27.	Institutul Național de Cercetare Dezvoltare pentru Pedologie, Agrochimie și Protecția Mediului București
28.	Institutul Național de Sticlă INS SA București
29.	Universitatea Transilvania din Brașov
30.	METAV SA București
31.	Institutul de Cercetare Proiectare pentru Construcții de Mașini ICTCM SA din București
32.	CCPPR SA Alba Iulia
33.	Institutul Național de Cercetare Dezvoltare pentru Inginerie Electrică ICPE-CA SA București
etc.

3.4. Defining the means to invite the respondents and transmit the inquiry

In order to invite the respondents to answer, the inquiry was sent via e-mail [2, 3]. Each institution in Table 1 received a customized message.

3.5. Results analysis

Following the answers received, the results were analyzed using the graphic method as follows.

4. THE MAIN RESULTS REGARDING THE ECOLOGIC RECOVERY SEPARATION TECHNOLOGY OF THE MINERALS IN THE EFFLUENTS

4.1. Importance

To determine the importance of technology, the respondents were asked to answer the question: "How important do you consider the ecological recovery separation technologies of the minerals in effluents?" Most respondents considered these technologies quite important (47 %) or very important (47 %) (Fig. 1). More than 6 % of the answers were moderated, some considering the technologies of average importance or of very little importance.

One should notice the large number of respondents who attributed high importance to the ecological recovery separation technologies of the minerals in effluents – 94 %.

4.2. The necessity of implementation

In order to study the need for implementing the technologies, the respondents were asked to provide an answer to the following question: "How necessary do you consider the implementation of the ecological recovery separation technologies of the minerals in effluents?" Most institutions considered the need for implementation to be quite important (47 %) or very important (47 %), the rest seeing it of very little importance (3 %) or of little importance (3 %) (Fig. 2). Moreover, just as for the first question, most respondents have pointed out the

How important do you consider the ecological recovery separation technologies of the minerals in effluents?

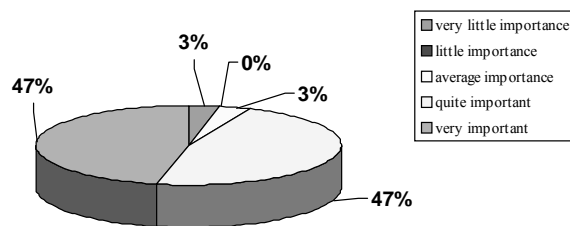


Fig. 1. Importance of ecological recovery separation technologies of the minerals.

How necessary do you consider the implementation of the ecological recovery separation technologies of the minerals in effluents?

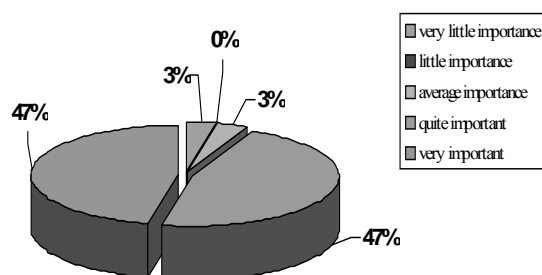


Fig. 2. Necessity of ecological recovery separation technologies of the minerals.

high importance (94 %) of implementing the recovery technologies.

4.3. Availability to contribute to implementation

For the question "Would you be willing to implement the ecological recovery separation technologies of the minerals in effluents?", the respondents proved to be quite willing (37 %), very willing (33 %), neutral (27 %) and only 3 % less willing (Fig. 3). One must notice that more than 50 % of the respondents are willing to contribute to the technologies implementation.

4.4. Impact

While determining the impact of the studied ecological technologies ("What impact do you consider the ecological recovery separation technologies of the minerals in effluents have?"), 87 % considered it to be large or very large, and only 13 % average (Fig. 4).

4.5. The use

In order to find out how willing would the respondents be to use the technologies, they were asked to answer the following question: "How willing would you be to use the ecological recovery separation technologies of the minerals in effluents?" Thus, 34 % of the respondents are willing to use the technologies, 13 % are very willing, 20 % have an average interest, 20 % are less willing and only 13 % are not so willing (Fig. 5). Moreover, almost half of the respondents were average or less willing to use the technologies in question.

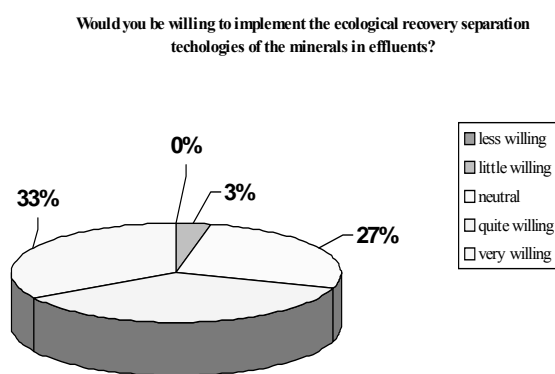


Fig. 3. Availability of ecological recovery separation technologies of the minerals.

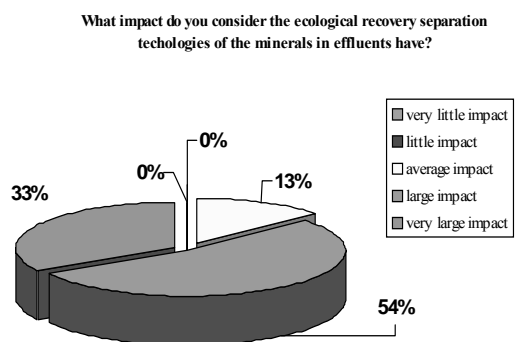


Fig. 4. Impact of ecological recovery separation technologies of the minerals.

4.6. Participation

As far as the participation is concerned, as research partner, raw materials supplier or beneficiary, it is interesting to notice that all respondents have declared themselves interested to get involved as research partner (Fig. 6).

4.7. Experience

When asked "Do you have any experience in the valorisation of useful substances in effluents? ", 60 % of the respondents said they owe technologies, 7 % are technologies beneficiaries and 33 % scored in the category others (Fig. 7). Moreover, the respondents said they have patents to improve the water quality, to improve the soil quality (fertilizers), other respondents are currently elaborating technologies.

4.8. Collaborations

Fig. 8 shows that 67 % of the respondents collaborate with foreign partners from other countries and 33 % with partners from Europe.

4.9. Issues on the effluents with heavy metals content

To evaluate perceptually the effluents issues, the respondents were asked to answer the following question: "Have you encountered problems for the effluents with heavy metals content?" Most respondents considered these issues to be collateral (67 %), minor (20 %) or major, but only 13 % (Fig. 9). One should notice the majority of respondents considered these effluents issues as collateral.

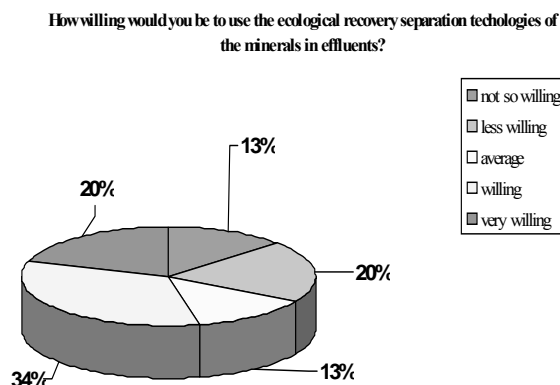


Fig. 5. Usability of ecological recovery separation technologies of the minerals.

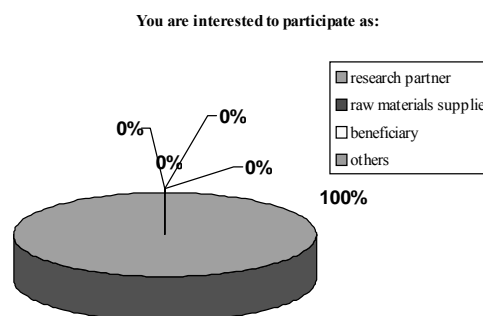


Fig. 6. Interest in involving in ecological recovery separation technologies of the minerals.

Do you have any experience in the valorization of useful substances in effluents?

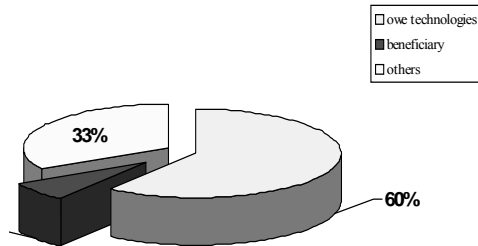


Fig. 7. Experience in the valorisation of useful substances in effluents.

Do you collaborate with foreign partners from:

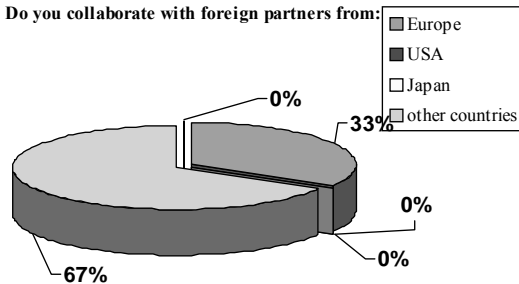


Fig. 8. Collaboration with foreign partners.

Have you encountered problems for the effluents with heavy metals content?

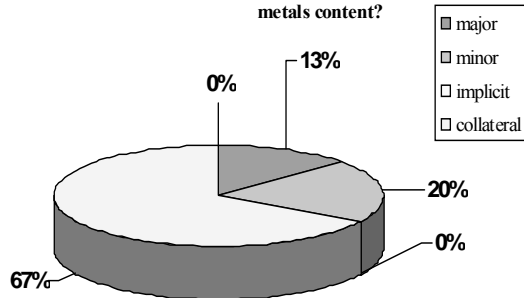


Fig. 9. Encountering problems for the effluents with heavy metals content.

5. CONCLUSIONS

While analyzing the inquiry results, the following can be noticed:

- the respondents consider the ecological recovery separation technologies of the minerals in effluents as quite important (47 %) or very important (47 %);
- the need to implement the technologies in question is considered very important (47 %) or quite important (47 %);
- 70 % of the respondents are willing to contribute to the technologies implementation;
- almost half of the respondents were average or less willing to use the technologies;
- all respondents wish to participate as research partner;
- 60 % of the respondents owe technologies;
- 33 % of the respondents owe patents to improve the water quality, to improve the soil quality (fertilizers),

other respondents are currently elaborating technologies;

- 67 % of the respondents collaborate with foreign partners from other countries and 33 % with partners from Europe;
- 67 % consider their issues regarding effluents as collateral;
- 86.67 % of the respondents do not wish to make an official presentation, while 66.66 % can involve other partners in a related project;
- 30 % of the respondents are legal persons (intermediary consumers), 27 % are legal persons (end consumers), 10 % natural persons (end consumers), 20 % higher education institutions and only 13 % other categories;
- 61 % of the company products are designed for the national market, 17 % for the local market and 22 % for the international market;
- 68 % of the entities have between 51–250 employees, 19 % have 25–50 employees and only 13 % of the respondents have over 250 employees.

REFERENCES

- [1] Drăgoi, G., Brissaud, D. (2002). *Manufacturing paradigm in the new digital economy*, The romanian review of precision mechanics, optics & mechatronics, supplement 21a 2002, Vol. 3-21 a, pp. 273–280, ISSN 1220–6830.
- [2] Strugnell, A. (1999). *E-Business Inovators*, Oracle Magazine, Vol. XII.
- [3] *** *Tehnicul Paper-Converged networks-case studies*, 3COM, 500671–002–1999.
- [4] Kahn, B.E., Schmittlein, D.C. (1992). *The Relationship Between Purchases Made on Promotion and Shopping Trip Behaviour*, Journal of Retailing, 68 (Fall), 294–315.
- [5] Kahn, B.E., Schmittlein, D.C. (1989). *Shopping Trip Behavior: An Empirical Investigation*, Marketing Letters, 1 (1), pp. 55–69.
- [6] Kau Ah Keng, Ehrenberg, A.S.C. (1984). *Patterns of Store Choice*, Journal of Marketing Research, 21 (November): pp. 399–409.
- [7] Oprean, V., Oprean, D. (2003). *Mecanisme ale comerțului electronic – conținut și arhitecturi* (mechanisms of the electronic commerce – contents and architecture), Tribuna Economică, pp. 32–43
- [8] Kotler, P. (2002). *Managementul Marketingului* (Management of marketing), Edit. Teora, Bucharest, pp. 756–989.

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