

***BUSINESS
INTELLIGENCE
TECHNOLOGY
WATCH***

Report produced for the EC funded project

INNOREGIO: dissemination of innovation and knowledge management techniques

by **LEIA Technological Development Center**

M A R C H 2 0 0 0

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INNOREGIO- Business Intelligence

1) Description

1.1. What is the technique

We have to understand the technological innovation as a necessary tool to detect that innovations are a competitive advantage in the market.

The used, administration, and the information research disposal carry out an important role in the organisation development and innovation actions for the firms. All of these allow us to have an useful national and international information about competitors, suppliers, markets and technological innovations. Through this information, the company connects with the client necessities, new technologies and helps to the implementation of innovation actions in the market with the lowest possible risk.

This process is called *Business Intelligence*, understanding as a collective voluntary process with which the companies work the information in an active manner. This information is used to anticipate to the society social-economical changes and to create opportunities and business actions. This technique has been thought with the finality of companies' progress to catch the market leadership where a limited passive attitude in receiving information not available. The treatment, analysis and validation of the information allow us to adopt the better decisions about the way of research and development projects, investment and strategy design. All of these is necessary to get optimum results ensue from their decisions and activities.

Having a general vision of this technique inside the companies' development, we have to take into account the quantity of events, which happen around us. When we realise their importance it is late to canalise that necessity in a solution for our company. The companies are working less than a 10% of this potential. The big companies have voluntary tools based on this technique, for this reason they advance the other companies because they have an earliest idea of the market necessities and are better prepared than their competence.

1.2. Objectives of the technique

The main objective is that the company advance to the social-economical changes, through the recruitment information, which allow us to create business opportunities and actions.

The specific objectives of this tool are the following:

Quality: Importance of advances the service quality and improvement the client attention. The quality level is always controlled and monitored by the process.

Innovation: Increase the competitive capacity by activities develops.

Productivity: Improve the effectiveness and efficiency.

Flexibility: Adaptive processes and structures to changing conditions and competence. Development fast mechanisms, arrangement to the new market necessities,.....

1.3. Description/ structure of the methodology/ alternative solutions

Nowadays, it is working in the tools development and/or work methodologies, which favour and facilitate the necessity of advance and anticipate the client necessities quickly. The objective is to get a big market share and high profits. In the market there are some tools (soft), in some ways experimental, and in others carry out.

IPTS: Instituto de Prospectiva Tecnológica de Sevilla was set up with the finality of increasing the alert and technological prospective to achieve a reliable access to the most actual world technological information, which are tied with the technological watch actions are carrying out in the specific Marco programmes

TIPPS: Transitional Pilot Programme is a project developed among different organisms of different countries with the objective of identifying innovation development techniques. The technological watch is one of the steps in the innovation development. The finality is to aim it in 60 companies around the different countries, which are participating in the project.

IALE-UNIVERSIDAD POLITÉCNICA DE CATALUÑA: They are working in detecting business opportunities and threaten through **TECHNOLOGICAL MAPS**. Their work is based in the interrelation numeric value analysis, where they detect new competitive technological opportunities.

CISS: Centro de Innovación y Servicios de Vigilancia de Galicia. They have developed a tool, which allow selective information diffusion to the Galicia companies (DSI). This service allows the companies to have a one's disposal person whose missions is look for, filter or classify information depending on the customer necessities and on the terms established for themselves. This tool is designed in a web site.

CREACIÓN INTERNACIONAL S.A.: It is a French consultant that has developed a Business Intelligence methodology of implantation in French companies.

CORDIS: Research and Development information service in the European community. Everybody can accede through its Internet site <http://www.cordis.lu>. It is one of the most interesting webs about European Community information, allowing the access to European program convocatories, searching in different database (partners, documents, news, projects, results, etc.).

Among all the different services have developed the **RAPIDUS** tool, which allows:

1.-Save database search profile:

It can save whatever CORDIS database search profile with the finality of not having to introduce the same information every time we make a consultant. RAPIDUS allows to create and save its personal search profile.

2.- Acquisition of automatic updates:

Possibility of receiving automatically the updates, which correspond to its search profiles. These updates will be send always by e-mail when they will be updated in CORDIS.

3.- Administration of your personalise list of search profiles.

The number of search profiles, which can be saved, is limited. You will be able to modify and erase your list profiles always you want.

CRIS 2000:

As from CORDIS, we can accede to another information source **CRIS 2000** (Information system about prevailing investigation), where it is possible to know what information systems about investigation exist and information about CRIS '98 conference.

These are the different apartments where we can find them, and from we can obtain more information about the conference:



AENOR: Asociación Española de Normalización y Certificación has a personalise service of Standards and Regulation Referential update to be exactly informed of each change in each standards or legislative dispositions, which the subscriber has selected: revocations, new editions, revisions, etc. And receiving periodically the complete text documentation.



DIALOG/DATASTAR: Allow the access to more than 500 technological information database. The most relevant are:

- MEDLINE
- CA SEARCH: Chemical Abstracts
- DERWENT
- DUN & BRADSTREET
- ENVIROLINE



They have an Alert service through which is able to have kept old search wherever in their database, and receive fortnightly or monthly updates of new references about the terms of that search.

1.4. Expects results/benefits

Introducing this tool into the company, we hope the following benefits:

- Decreasing the information volume used and increasing the useful knowledge.
- Better investment, it mines a high percentage of relevant information in limited boxes according to the necessities.
- Helping the company to change its strategy direct to products and giving an approach to the services.
- Products and Services differentiation.
- Assure total quality in its products and services.
- Increase the speed action in emergency situations.
- Search new business, customers and markets.
- Identify new research and development lines for the company.

1.4. Characteristics of firms/ organisations and service providers

The develop and starting of one of this tools carry out the work of specialist personnel in the treatment of the information and in the knowledge of each source to selected information from where the company can obtain the high useful information quantity.

In this way, we can make a division between specialist personnel (documentalists) and the suppliers of our information sources.

Specialist Personnel.

The documentalists is essential in all this process, and his/her experience and knowledge in the information research exploitation, make possible the detection of primary information. She/he is who reaps anticipatory all the different alarm signs, which appear in the market, and whose can be interested for the development of new services. Too many times, the documentalists is from the own staff of the company.

Information Sources Suppliers.

Nowadays, the majority information is obtained by electronic way, by Internet, but inside this net of nets, we must analyse and structure really well the web sites, which we used. Having into account the periodicity with the information is updated and also with the information reliability and the supplier.

Some of the most important are the following:

- **DIALOG/DATASTAR:** Corporation, which settles the access to more than 500 database of technological information. The consultation can be made in English and the access is through subscription (with the same characteristics of CAS OnLine/STN, QUESTEL/ORBIT).
- **CORDIS:** Recruitment and structuralization of all the information about research and development in the European Community. The access is fast and easy. The consultation is in different languages and free.
- **European Union:** Allows the access to all the information in relation with the different EU authority (Congress, Council, Commission, Court of Just, Court of Account, etc).
- **Patents Offices:** they have a database called sp@acenet, which allow the access to the information about all the European patents by countries and also to world patents. Besides, exits other offices where it is possible the access to American and Japanish patents. The access is free, but not always the texts are completed.
- **Official Bulletins:** Pages of legislative interest, where it is possible the summary consultation of all the bulletins (European, national, autonomic). In some of them is possible the access to the complete text and is free.
- **Official Organisms:** all the web sites are reliable in information and links to other interesting pages.
 - Internationals
 - Nationals
 - Regional
- **AENOR:** Asociación Española de Normalización y Certificación. Access to UNE standards database, it is free.
- **BRITISH LYBRARY/CINDOC:** are two of the most known institutions in bibliography data and summarise documents. It allows the solicitude of whatever article.

(APPENDIX 1 these web sites and other interested sites)

2) Application

2.1. Where de technique has been applied (firms/organisations)

This technology can be applied and with interest to all companies, but by the moment and having into account the entities, which apply, and to who are aimed at, we can say that in general, this technology is being applied in two kind of companies:

- Big companies with the necessity of improving innovation, companies which need the information to progress its competitor and market. In some ways, like the information about the research and development in the European Community (CORDIS), patents information, standards, etc, these tools are useful for a large number of companies in all Spain and Europe.
- Small and Medium companies, which have contracts with a watch service, but in concrete ways (legislation, subsidies, patents,...). They used to work for industrial sectors.

2.2. Types of firms/ organisations concerned

This tool has been made to settle in small and medium companies, which have the conscience of the information value and the importance of detect before the market necessities of their competence. In this way, they will facilitate the development of the own company again their competitors.

This tool is specially interested to the companies which:

- Do not have appropriated channels to look for new ideas of research and development.
- Have not this information, are losing business opportunities.
- Need too many time to locate and obtain information, which not always is interesting.
- Have excessive costs in relation with the profits obtained for this work.

Normally, the companies with technological base set up the step of research and development their products, and also where can be more useful the utilisation of a Business Intelligence tool.

2.3. Implementation cost

Length of time:

The Business Intelligence system implantation has an approximate duration of 8 months, depending of the company size, methodology, implementation grade of the personnel and facilities or difficulties, which appear during the system start up.

The following chronogramm gives an idea of the length of each step, being possible variations while the process is developed.

Chronogramm:

	TAREAS	MESES							
		1	2	3	4	5	6	7	8
0	Project Preparation & Co-ordination.	■							
1	Planning and Management		■						
2	Acquisition of the information			■	■	■			
3	Process & analysis					■	■	■	
4	Diffusion of the results							■	
5	Actions								■

Implementation cost:

The implementation of a Business Intelligence system is divided in two different steps:

1. Acquisition, treatment and diffusion process design.
2. The implementation of the pre-design study using the necessary tools for the system development and the inclusion into the internal organisation of the company in new processes.

To develop a tool of these characteristics, it is necessary an infrastructure, equipment, and subscription costs in database, patents, standards, legislative documents, technical articles, etc. These are some of the sources from which we will obtain the information.

Approximated cost:

STEP	DESCRIPTION	COST (pts.)	Euros
1	Design & Process develop of Business Intelligence	500.000	3005,06
2	Implementation of the pre-design study, using the necessary tools to develop the system and the inclusion inside the own organisation of new products (investment in equipment, subscriptions,...)		
	Personnel (5 people)	6.350.000	38.164,27
	Infrastructure	1.195.000	7.182,09
TOTAL		8.045.000	48.351,42

2.4. Conditions for implementation (infrastructures, modification required, etc.)

Needed infrastructure:

- Server Hewlett Packard Net Server E60

- Pentium III a 500 Mhz UW SCSI
- 128 SDRAM
- Hard Disk de 9.1 GB a 7.2000 rpm.
- Mirroring Disk de 9.1 GB a 7.2000 rpm.
- Network adapted Ethernet 10/100 RY-45
- Windows NT Server
- SQL Server IIS, CDs installation
- Licences (min. 5 per.)
 - S.O. Windows NT, SQL Server (Client cd + manual) y IIS
- Computer EGESA PIII 500
 - Processor Intel Pentium P III 500 Mhz (512 Kb Caché) + Dissipater Air-fan CPU
 - Main board Q-LITY P3BX PIII until 600 Mhz, processor inerl Chioset 440 BX AGP
 - Hard Disk ultra DMA 8,1 Gb, IDE DMA 33 integrate 2 I/O PCI, Floppy driver 3 ½ 1.44 Mb.
 - Memory 128 MB SDRAM2 DIMM of 168 contacts (100 Mhz)
 - Graphic card 8MB ATI 3D
 - Minidin keyboard 105 PS/2, 2 bottoms mouse, mouse pad
 - CD ROM 48x
 - Monitor 15" Svga Dig 0,28
 - Network adapted 10/100
- Subscription to information sources
 - Access to pay databases (DIALOG, ECOIURIS, etc.)
 - Periodical publications
 - Bibliographic Information

2.5. European organisations supporting the implementation of the method

The importance and the necessity of one Business Intelligence tool in the small and medium companies and also in the big ones, is really important.

The *European Commission* supports these methodologies implementation in its INNOVATION programme to promote the innovation and help the participation to SMEs, and more exactly, in information electronic services and other diffusion media. They start up the Information Service about Communitary Research & Development (CORDIS).

Also, they support technological research & development actions to specific programme about Information Society (programme IST), which belongs to the V Marco Programme.

Other national organisations, which support these tools with their programmes, are the following:

MINER (Ministerio de Industria y Energía) frame these tools into the foment programme of industrial technology, Technological area and Application to the Information society. Some of these funded projects are:

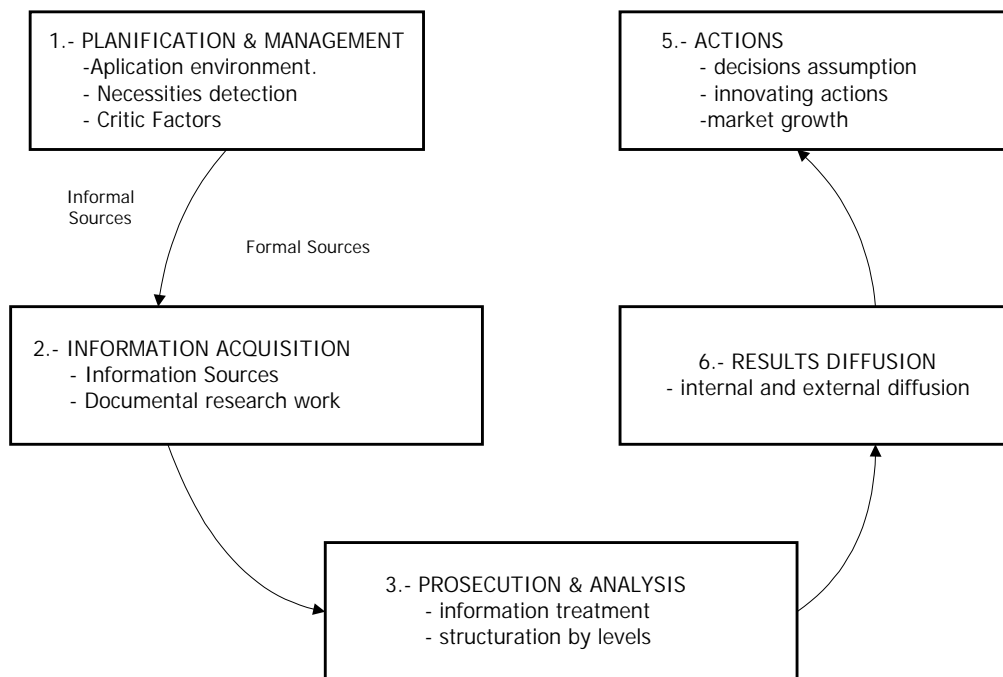
*Preparation of assimilation measure or Craft proposals for SME in the V Marco programme in the areas of information technologies and communications (PROMARCO-TIC).

*Information Technologies Implantation project and Communications in Traditional Industrial Sectors (TICTRAD).

3) Implementation procedure

3.1. Steps/phases

Intelligence Cycle (Process steps)



Steps in the implementation of Business Intelligence System

STEP 0. PROJECT PREPARATION & COORDINATION

Duration: 2 weeks Participants: Business Intelligence equipment, consultant equipment.

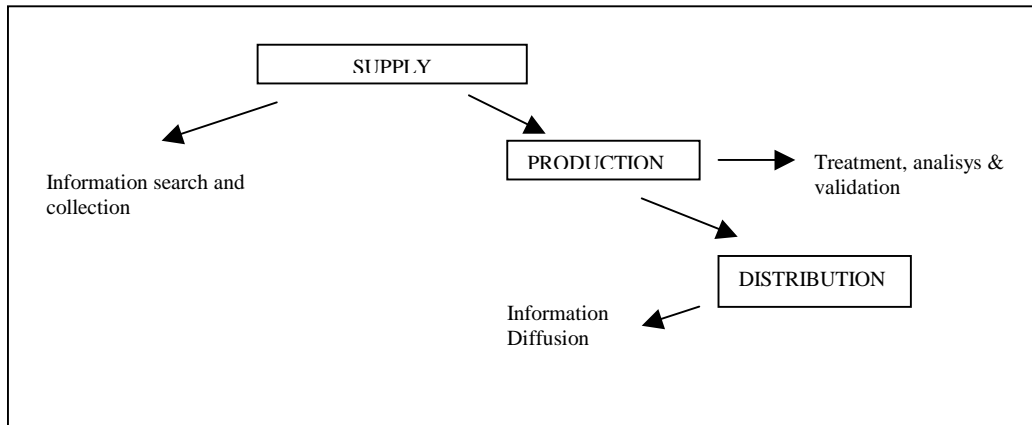
Objectives:

- Establish a media firm support to fulfil the project.
- Detect which human resources are suitable.
- Explain the project details, roles and importance to the different components, which are entrusted with the process develop and start.
- Communicate the objective to achieve, detect new market opportunities.

Actions to develop:

- Explain the necessity level of introducing a collection and selection system of intelligence information.
- Localise the personnel entrusted with the system introduction and inform them about their commitments.
- Appoint tasks and dedication to the personnel in each step.

(ANEX 3)



STEP 1. PLANNING & MANAGEMENT

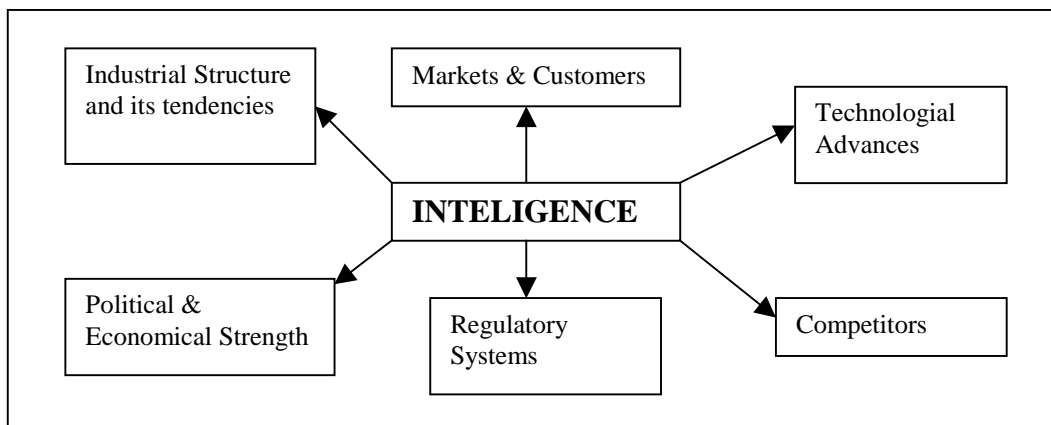
Duration: 4 weeks Participants: BI equipment, consultant equipment, personnel.

Objectives:

- Select the actuation environment of the intelligence interesting to the company.
- Detect the information necessities of the company to focus the innovation tool.
- Detect the critic factors of the company.

Actions to develop:

- Identify the company necessities by an internal analysis (ANEX 4).
- Select the actuation environment interesting to the company depending on its necessities.
- List the critic factors of the company (what that company knows to make, in which steps can advance more easily).



STEP 2. INFORMATION COLLECTION

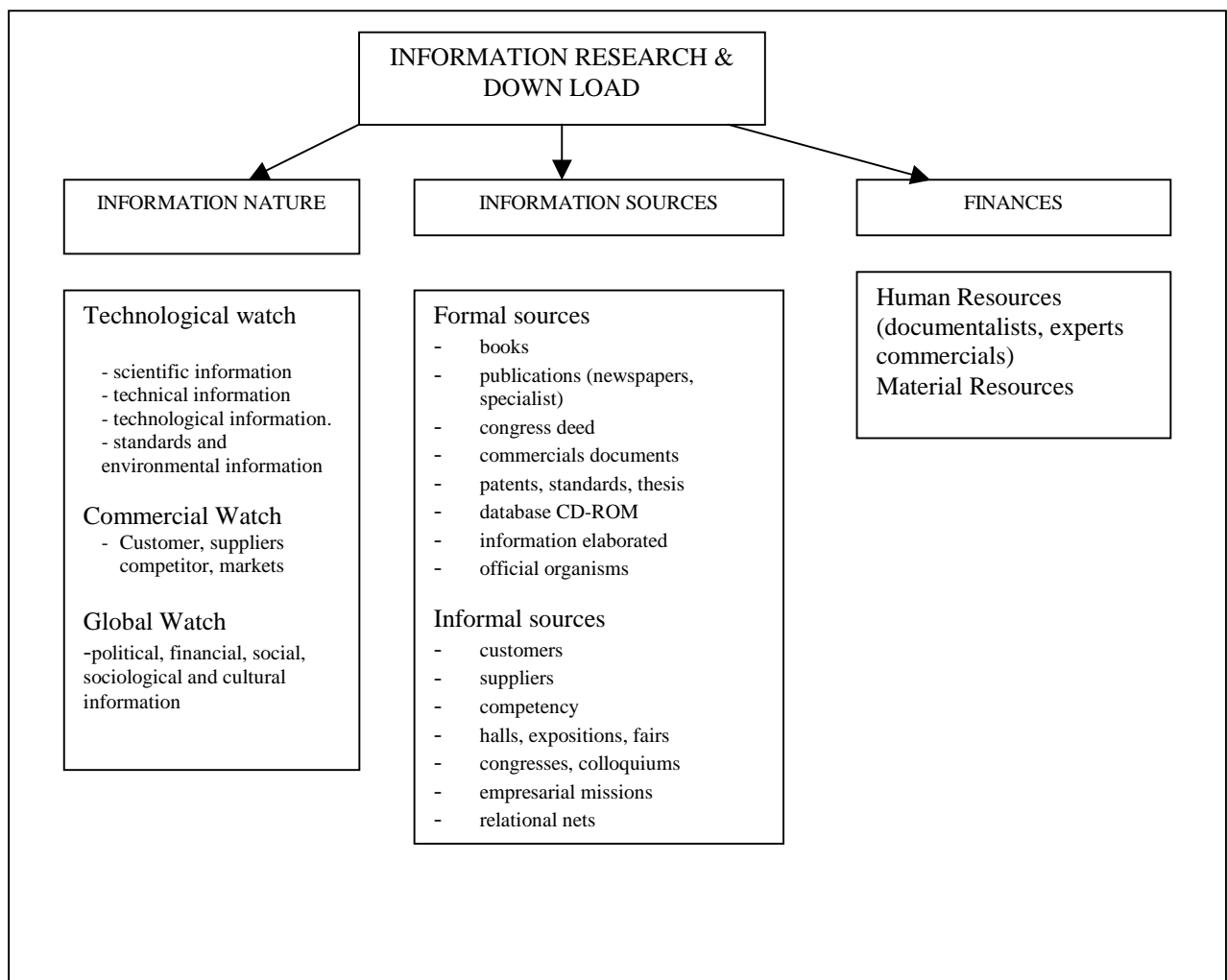
Duration: 10 weeks Participants: BI equipment, consultant equipment (documentalist)

Objectives:

- Detect information sources.
- Work in documentary investigation.

Actions to develop:

- Localise the information sources with high information interest for the company, where we can obtain the big amount of information to get a high anticipation grade to new possible products, technologies, etc... The finality is to improve the market position and the profits.
- Information experts will make a documentary research work depending on the necessities and critic factors detected on the company with the finality of focus sources localisation and increase the informative value for the company.
- Information sources validation (% credibility).



STEP 3. PROSECUTION & ANALYSIS

Duration: 10 weeks Participants: BI equipment, consultant equipment, personnel

Objectives:

- Information treatment from 2nd step.
- Hierarchical structuralization of the information depending on the company necessities and critic factors

Actions to develop:

- Design an actuation strategy- index information sources.
- Hierarchy the obtained information- command and catalogue the information.
- Subscribe information sources, which are really interesting and always contribute important information.

STEP 4. RESULTS DIFFUISION

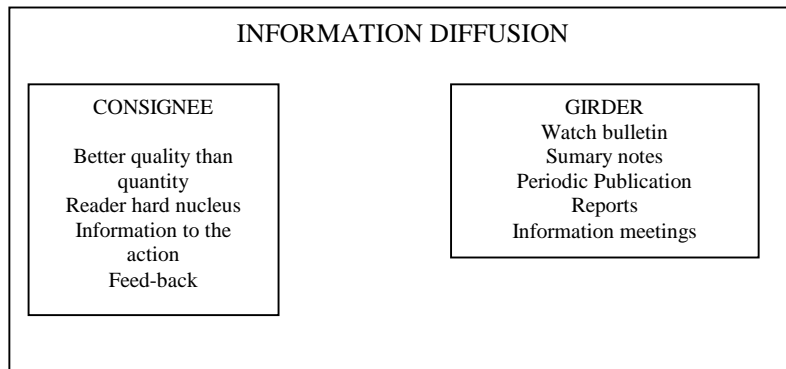
Duration: 4 weeks Participants: BI equipment, consultant equipment, personnel.

Objectives:

- Diffusion of the obtain results among the people entrusted with estimating that information and fulfil action

Actions to develop:

- Diffusion the obtained information in an adequate way.
- Internal and external diffusion.



STEP 5. ACTIONS

Duration: 4 weeks

Participants: BI equipment, personnel

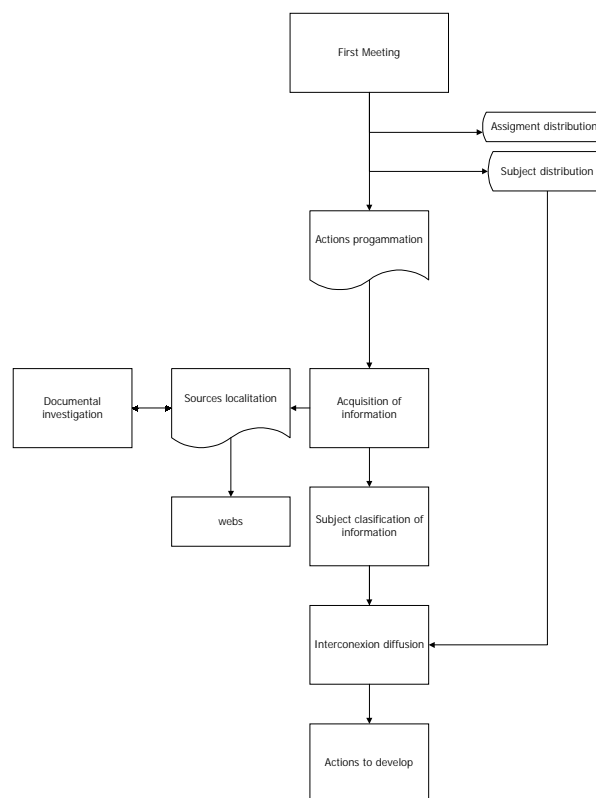
Objectives:

- Resolutions.
- Develop new market actions.
- Market enlargement and product improvement.

Actions to develop:

- Organise meeting among the authoritative personnel and resolute depending on the obtained information.
- Start innovation actions to enlarge the market.
- Analyse the benefits of these actions.
- Valorise the importance of this information.

Flow Diagram: general process



The other flow diagrams are in the APPENDIX 2

3.2. Partial techniques and tools included in each step

Methods and techniques are explained in each step in paragraph 3.1 with related references to the appendixes.

3.3. Related software (existing or being prepared)

It is foreseen the use of this tool through a web environment, with access pages to all the information as it is shown in the APPENDIX 6.

4) Bibliographic references

- TIPPS: Transnational Innovation Pilot Programme, ENTERPRISE IRELAND, ICT (et al.), 1998
- "Annual Report Contribution: Technology Watch, IPTS- Sevilla , 1996
- TEMAGUIDE: a guide to technology management and innovation for companies, COTEC, SOCINTEC, IRIM, CENTRIM, 1998
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- AMAT, Nuria (1994), "La documentación y sus tecnologías", Pirámide, Madrid
- MALLO, F (1985), " Análisis de componentes principales y técnicas factoriales relacionales" Universidad de León.
- WORKING DAY:
 - * TecMinho (Seminario): structuring and leading a technology watch system.(Portugal, 20-22 Oct. 1999)
 - LESCA: Method to set up a tool strategic collective intelligence of the company
 - Business Intelligence.
 - * La vigilancia tecnológica (Madrid 1-2/12/99)Fundación Universidad Empresa

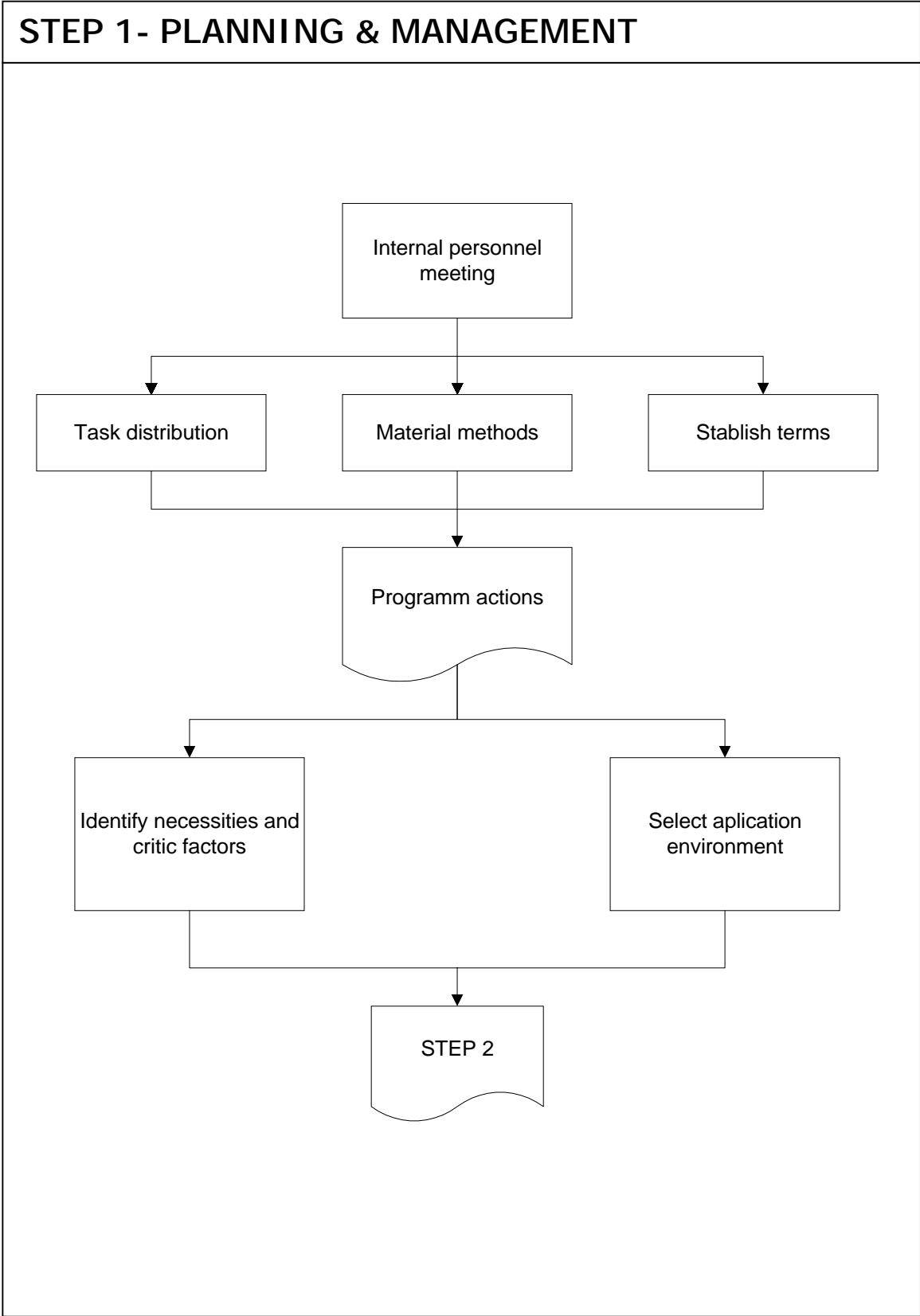
APPENDIX- 1 Information sources

ORGANISM	SPECIALITY	INTERNET ADDRESS	COMMENTS
DIALOG/DATASTAR	Services	http://www.dialog.com	Access by subscription to more than 500 database of technological information.
CAS OnLine /STN	Services	http://www.cas.org	Access by subscription to a large number of database
QUESTEL/ORBIT	Services	http://www.questel.orbit.com	Access by subscription to a large number of database
UNION EUROPEA	General Information	http://www.europa.eu.int	Server allows the access to all the information in relation with the different organisms of the European Community and in different languages.
CORDIS	R6D Information European Community	http://www.cordis.lu	Collect and structure all the information about R&D in the European Community. Free access and in different languages.
PATENTS: European office Spanish office EEUU office IBM Patent Server	Patents	http://www.european-patent-office.org http://www.oepm.es http://www.uspto.gov http://www.patents.ibm.com	Access through Sp@cenet database to patents information by countries, Europe and worldwide.

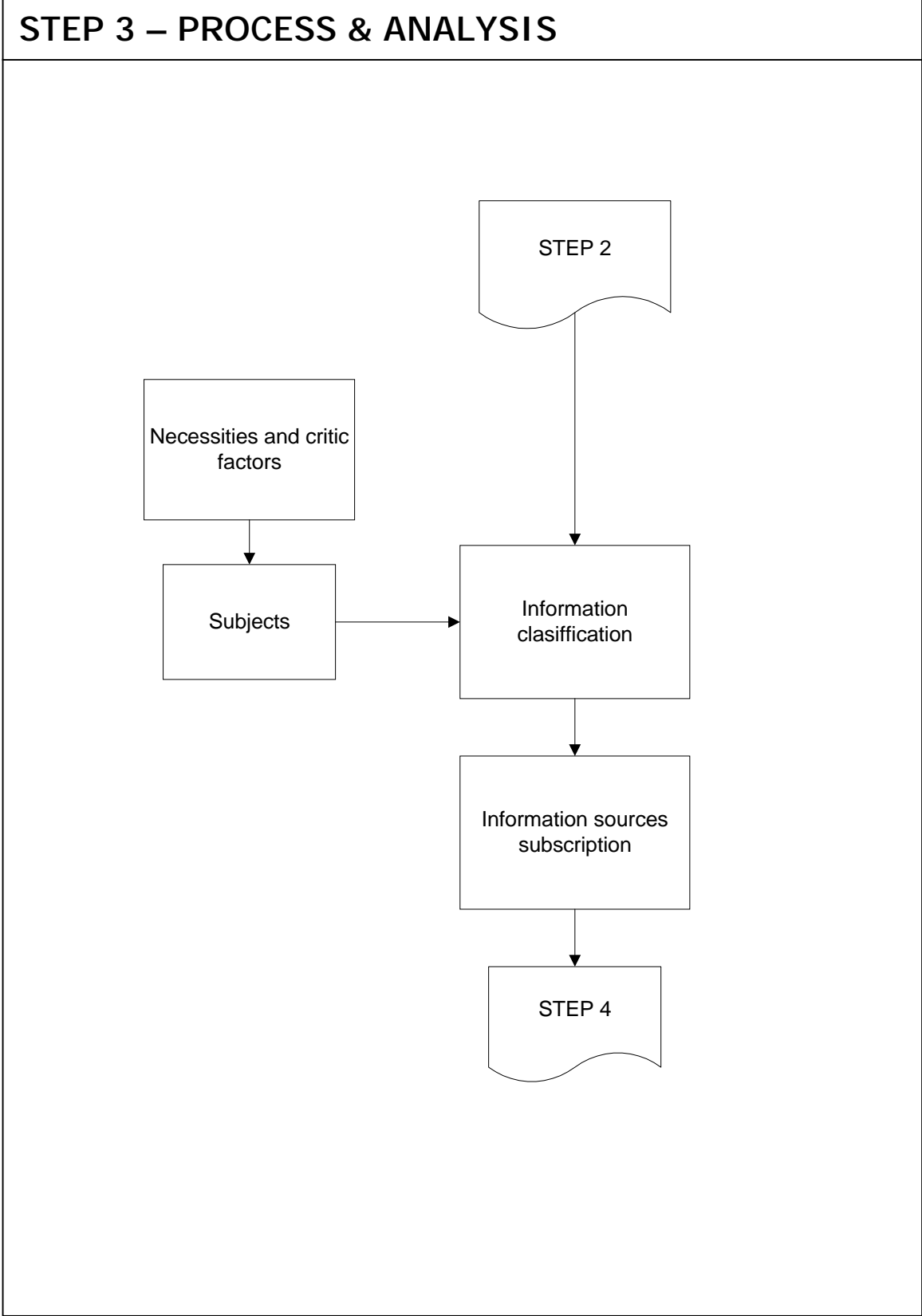
ORGANISM	SPECIALITY	INTERNET ADDRESS	COMMENTS
<p>NORMAS:</p> <p>ISO (The International Organisation for Standardisation)</p> <p>DIN (German standards)</p> <p>AENOR (Asociación Española de de Normalización y Certificación)</p> <p>ASTM (The American Society for Testing and Materials)</p> <p>BSI (British Standards Institute)</p>	Normalisation and certification	<p>http://www.iso.ch</p> <p>http://www.din.de</p> <p>http://www.aenor.es</p> <p>http://www.astm.org</p> <p>http://www.bsi.org.uk</p>	Complete information about the standards of different countries. Consultation in database.
<p>OFFICIAL BULLETINS:</p> <p>All bulletins</p> <p>Diario Oficial de las Comunidades Europeas (DOCE)</p> <p>Boletín Oficial del Estado (BOE)</p>	Legislative References	<p>http://www.granavenida.com/cumlaude</p> <p>http://www.europa.eu.int/eur-lex</p> <p>http://www.boe.es</p>	Access to the official bulletins summaries of European Community, Spain and regions

ORGANISM	SPECIALITY	INTERNET ADDRESS	COMMENTS
BIBLIOGRAFIA: British Library National Spanish Library.	Bibliography references	http://www.bl.uk http://www.bne.es	
ORGANISMOS OFICIALES: EPA: U.S. Environmental Agency European Agency of security and safety.	Environmental Security and Safety	http://www.epa.org http://www.eu-osh.es	Information about environmental subjects. Free access to a large amount of information Information about security and safety subjects.

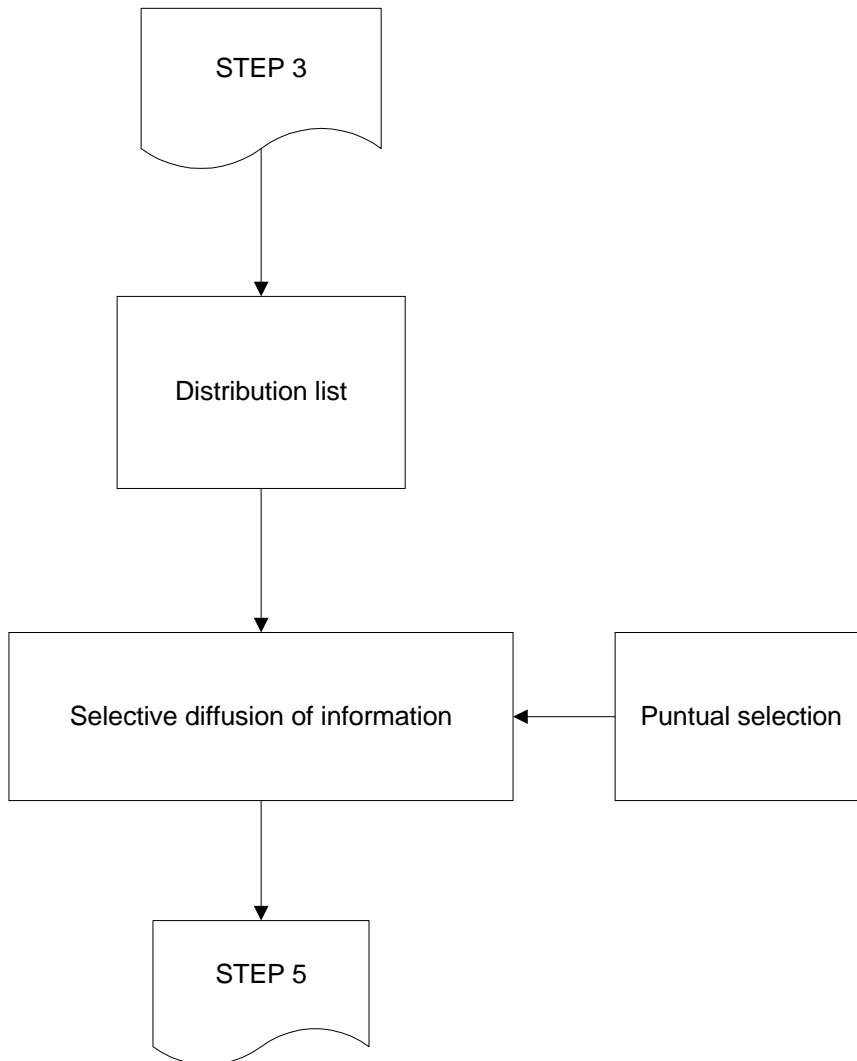
APPENDIX-2

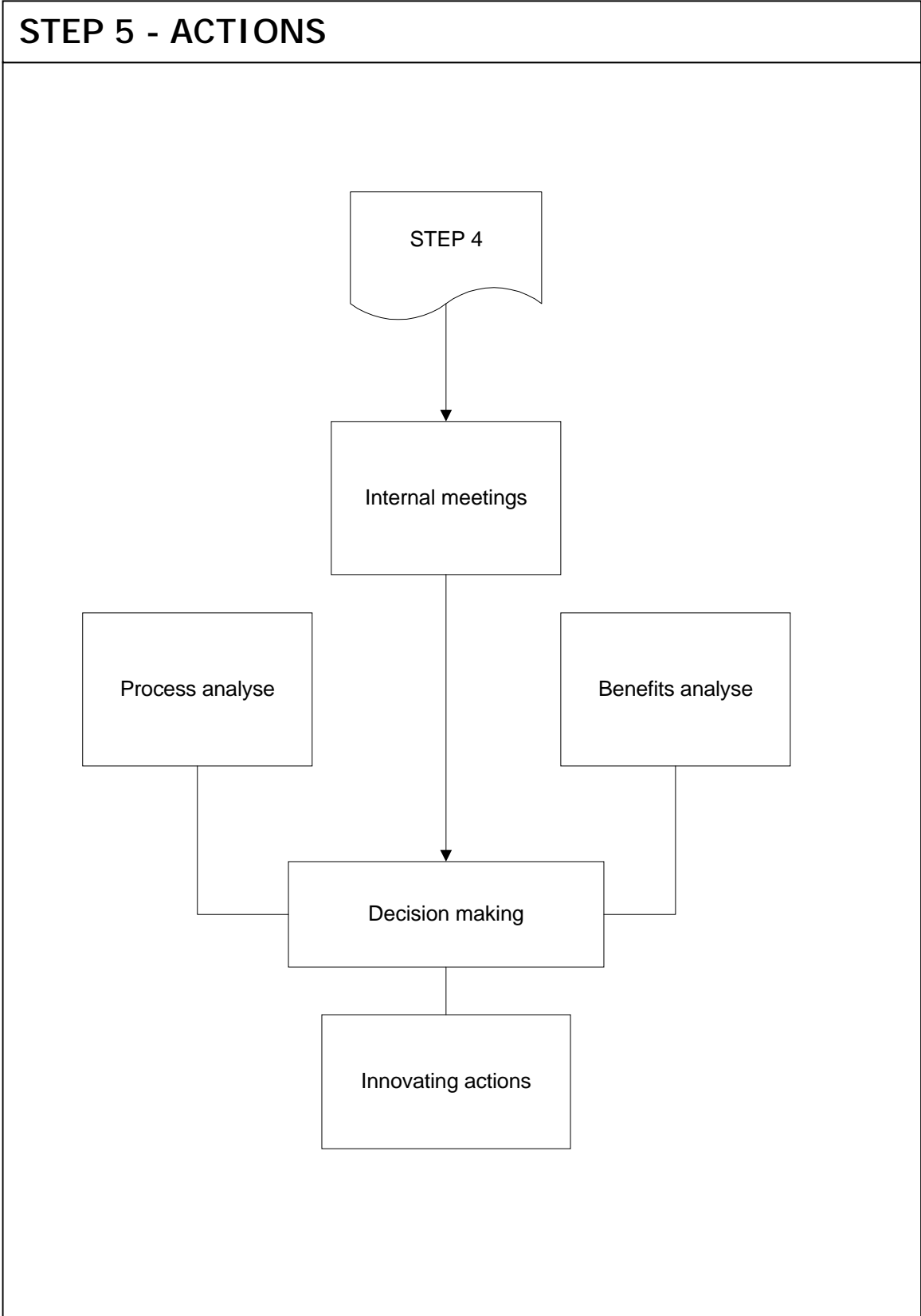






STEP 4 – RESULTS DIFUSSION





APPENDIX-3 Task detach

TASKS	PERSONNEL	ACTIONS TO DEVELOP	WAYS	OBSERVATIONS	EJECUTION TERM
Project preparation and co-ordination.					
Planning and Management					
Information Acquisition					
Process and analyse					
Result Diffusion					
Actions					

APPENDIX-4 Company internal Analysis

a) **Business Description** (mark with an X the option)

CONSUMABLE GOODS MANUFACTURE	
Durable goods	
Non-durable goods	
INDUSTRIAL/COMERCIAL/PROFESIONAL PRODUCTS MANUFACTURE	
Capital goods	
Raw Materials or semi-end manufactured goods	
Annexation Components in end manufactured goods	
Frequent consume articles or supplies	
SERVICES	
WHOLESAlder OR RETAILER DISTRIBUTIÓN	

b) **Products and services**

Point out detailed, by order of importance , the principal products or services, which the company has offered during the last year, and data when they were developed for the first time..

1-	
2-	
3-	
4-	

Product line extensive: point the product line extensive out, which the company offers in relation with the product line of its principal competitors.

1. Short extensive	
2. Same extensive	
3. Large extensive	

Product frequent changes: With which periodicity the company modify the products and services offered?

1. Less than a year	
2. Annual	
3. More than a year	
4. Not regular, it has not any periodicity	

Innovations: Point out the last five years important technological changes.

In products

Add new materials	
Add new components or intermediate products	
Add new design and presentation	
The product has new functions	

In the process

Add new machinery	
New organisation methods in the production	
New machinery and new methods of organisation in the production	

c) **Market and competence**

Market Localisation: point out the market geographic localisation by the company.

1. Regional market	
2. National market	
3. European market	
4. Others	

Market evolution: point out the closer option to the real market kept by the company.

Maturity market during the last five years	
Decline market during the last five years	
Growth market during the last five years	

Point out the importance ratio of each different market change for the company (if they have happened).

	Importance ratio				
	Minimum	Medium	High		
1. Price variation in the competitors' price.	1	2	3	4	5
2. Price variation in the equivalent import products	1	2	3	4	5
3. New products introduction	1	2	3	4	5
4. Demand changes or customers' requirements	1	2	3	4	5
5. Cost changes through new technologies.	1	2	3	4	5
6. Cost growth in the basic used goods.	1	2	3	4	5
7. Cost growth in the manpower.	1	2	3	4	5

d) Information acquisition and treatment

Point out the importance or fulfilment ratio that the following questions have for the company:

	Importance ratio				
	Minimum	Medium	High		
1. Searches information to detect technological development opportunities and new products or markets generation	1	2	3	4	5
2. Own personnel working in the information localisation	1	2	3	4	5
3. The information diffusion is correct among the personnel	1	2	3	4	5
4. Receives periodically new information about interesting tasks	1	2	3	4	5
5. Has a special department that work with the information	1	2	3	4	5
6. Subscribe to any publication in relation with its sector	1	2	3	4	5
7. Association/institution members	1	2	3	4	5
8. How many books buys annually?					
9 How many magazine/norms/patens?					
10. Has its own patent?					
11. How collect the information?					

List some of the common ways the company uses to localise interesting information.

