

Economic Intelligence.
A Guide for Beginners
and Practitioners



Coordinator



Partners



Collaborators



Economic Intelligence

A Guide for Beginners and Practitioners



A research undertaken with support of the "Promotion of Innovation and Encouragement of Participation of SMEs" Programme of the European Commission

This guide has been prepared by the CETISME partnership, formed by:

- iDeTra – Innovación, Desarrollo y Transferencia de Tecnología, S.A. (Coordinator)
- Comunidad de Madrid – Dirección General de Investigación
- Conseil Regional de Lorraine (with the collaboration of CEIS and ATTELOR)
- Coventry University Enterprises Ltd. (with the collaboration of the EPI Centre)
- Consorzio Pisa Ricerche (with the collaboration of Meta Group)

The views expressed in this document are those of the authors and do not necessarily reflect policies of the Commission of the European Communities

Legal Notice: M-50873-2002
I.S.B.N.: 84-451-2350-5

Copyright © 2002
European Communities
Innovación, Desarrollo y Transferencia de Tecnología, S.A.
Comunidad de Madrid – Dirección General de Investigación
Conseil Regional de Lorraine
Coventry University Enterprises Ltd.
Consorzio Pisa Ricerche

Preface	7
PART I. A GUIDE FOR BEGINNERS	
1. Introducing Economic Intelligence	14
1.1. Managing information flows	
1.2. Strategy and information	
1.3. From data to knowledge	
1.4. Basic concepts and definitions	
1.5. The human factor	
BOX 1. A case firm with clear priorities in Economic Intelligence	
2. Putting EI to work	22
2.1. Matching EI with organisational systems	
2.2. The EI process framework	
2.3. Implementing an EI system	
2.4. Types of EI function	
BOX 2. Synergy between Communication, Information and Technology	
3. EI practice in European SMEs	34
3.1. A view of current EI practice in SMEs	
3.2. A benchmarking of European SMEs displaying some level of EI experience	
3.3. EI practice differences in regions, industry and company size	
4. Expanding the use of Economic Intelligence	42
4.1. The future of easy access to information	
4.2. EI methods in new fields	
4.3. EI and regional policy	
4.4. Assessing the company position in Economic Intelligence practice	
PART II. A GUIDE FOR PRACTITIONERS	
5. The information needs	56
5.1. Who might be interested in using EI?	
5.2. EI users	
5.3. Auditing the organisation's information needs	
BOX 3. Essential tools for surviving in the market	
6. Searching for information	66
6.1. Searching information on the web and electronic bases	
6.2. The use of traditional sources	
BOX 4. A firm taking relevant advantage of the Internet	
7. The analysis of information	78
7.1. Methodologies for the analysis of information	
7.2. Analysis tools	
7.3. The skills needed	
BOX 5. External expertise supporting the EI process	
8. Dissemination of information	88
8.1. Some patterns of dissemination	
8.2. Open information access	
8.3. Technologies can help	
8.4. Confidentiality and protection of information	
8.5. The ethical and legal framework for EI	
BOX 6. A firm with a Knowledge Management strategy	
Conclusion	97
Who's who in EI	101
Further reading	105
Glossary	109
The CETISME project	115

Preface

Improved access to information, made easier by the continuous development of technologies and networks, will be a key feature of future society.

Its application to support decision-making by organisations, enterprises or individuals, will facilitate better and, eventually, more innovative approaches and answers to the opportunities and risks in a rapidly changing world.

Economic Intelligence (EI) aims to take advantage of this opportunity to develop better methods for the identification of relevant sources of information, the analysis of the collected information and its manipulation to provide what the user needs for decision making.

Focused mostly on information available outside the organisation, the scope of Economic Intelligence covers wide fields ranging from technology to market or legal topics. EI is closely linked to other information management approaches such as Knowledge Management – which we regard as working on information collected inside the organisation – or Business Intelligence, that excels in the use of software tools to deal with mainly quantitative information, but EI is different.

EI mainly addresses users that want up to date information to make the best decisions in a framework of a defined strategy. It is also of interest to policy makers who create the context for other's strategies or, more generally, to support creativity processes.

Our research shows that the uptake of Economic Intelligence methods and tools in Europe is on the increase but has so far been slow, and we believe this is a hindrance to innovation. This applies particularly in the case of small and medium sized companies, presenting an obstacle to their competitiveness.

EI should therefore be of interest to those involved in the promotion of innovation, providing them with a more focused approach for themselves and the companies they support.

This guide to Economic Intelligence has been written by practitioners from different European regions who have played different roles in the implementation of projects designed to help firms master information for competitive advantage. It is primarily directed toward Small and Medium sized Enterprises (SMEs) who are looking to permanently improve their approach to strategy, decision-making processes, action plans for innovation and day-to-day management. It should also be useful to technology, economy, market-oriented and intermediate service providers supporting SMEs and should help policy makers and politicians too.

The contents of the guide are organised into two complementary sections :

1. A Guide for Beginners: this presents the different definitions, uses and practices in Economic Intelligence in different situations and regions in Europe; this section will help to raise awareness amongst those in the levels of the socio-economic fabric who need to understand this still new approach - where information is seen as a resource in the same way as energy, raw materials or manpower.

2. A Guide for Practitioners: this second section of the Guide provides a number of practical ways of implementing Economic Intelligence practices at the company, network or regional level. It does not provide ready-made solutions, but help to the readers to negotiate their way through the different concepts, methods and tools of EI and illustrates how they can build their own action plan.

Examples of EI practice amongst European SMEs are illustrated through case studies appended to the chapters.

PART I
A Guide
for Beginners

PART I. A GUIDE FOR BEGINNERS

1. Introducing Economic Intelligence

14

- 1.1. Managing information flows
- 1.2. Strategy and information
- 1.3. From data to knowledge
- 1.4. Basic concepts and definitions
- 1.5. The human factor
- BOX 1. A case firm with clear priorities in Economic Intelligence

2. Putting EI to work

22

- 2.1. Matching EI with organisational systems
- 2.2. The EI process framework
- 2.3. Implementing an EI system
- 2.4. Types of EI function
- BOX 2. Synergy between Communication, Information and Technology

3. EI practice in European SMEs

34

- 3.1. A view of current EI practice in SMEs
- 3.2. A benchmarking of European SMEs displaying some level of EI experience
- 3.3. EI practice differences in regions, industry and company size

4. Expanding the use of Economic Intelligence

42

- 4.1. The future of easy access to information
- 4.2. EI methods in new fields
- 4.3. EI and regional policy
- 4.4. Assessing the company position in Economic Intelligence practice

1. Introducing Economic Intelligence

The flow of information is the lifeblood of organisations. The dramatic increase and acceleration in volume of information poses challenges for day-to-day management in all kinds of organisations. Organisational strategy needs to take account of this and individual systems need to be sensitive to it. All concerned need to understand the process of changing data into knowledge and then into intelligence. EI is a new way of looking at these issues, connected to Competitive Intelligence, Knowledge Management and Technology Watch, but something different. In the end, what really counts is an understanding of the human dimension of the EI process.

1.1. MANAGING INFORMATION FLOWS

Organisations of all sizes and kinds are challenged by the needs of information management. Some larger enterprises have developed their approach to Economic Intelligence to meet this need. SMEs face the same kind of problems.

The concept of intelligence comes from military circles and dates back to Roman times. Throughout the history of civilised society there has been a requirement to research information, and the question of the protection of sensitive information against undesirable disclosure has been ever present. Globalisation, the spread of information and communication technologies, the construction of formal and informal networks, the acceleration of economic change, the evolution of relationships between the makers of finished products and their suppliers, the introduction of Customer Relationship Management, and the shortening of product life cycles, among other things, has led to permanent changes in the day-to-day management of the enterprises.

These challenges are the same for a large company as for an SME. The breadth of the fields of investigation are more or less the same and the responses must be the same. But for an SME - the resources are not. There are several orders of magnitude difference between the resources available to a large company and those of an SME in terms of finance, number and skills of people and equipment.

But we are facing a dramatic acceleration in the volume of accessible data influencing the decision-making process in SMEs and large firms alike. In 1999, the Japanese company NEC estimated the number of available Internet web pages at 1.5 billion with an annual growth rate of 88 % (2 million pages a day). Today, the figure is said to be between 2 to 5 billion pages. The French analyst IDC expects some 8 billion of html pages to be accessible at the end of 2002¹.

In order to cope with such a mass of information, it is vital to adopt pragmatic and efficient methods for screening and selecting what is really useful to the decision-making process.

¹ *Guide pratique de la veille technologique et stratégique sur internet*, édition 2002, Innovation 128/Adit, France

1.2. STRATEGY AND INFORMATION

The day-to-day management of an organisation operates within the framework of a strategy. Good management decisions rely on quality information.

An explorer needs a compass and a map to find his way in a jungle. He may enjoy the marvellous colours, the fantastic shapes of the greenery and the incredible richness of the wildlife. But without the right tools and a planned approach, he does not know where he is or where he is going. Without a strategy, today, an entrepreneur can obtain as much information as he wishes but it is of no use if he does not know how to take advantage of it.

Strategy is the result of a dialectical process between the internal situation and the external world. SME information management must cope with two types of information: **external** and **internal**. This process involves confrontation-comparison-calibration. This is sometimes called benchmarking. Whatever it is called, it helps the decision-maker to develop their own framework for action, looking at the long term—strategy or short term—management. (see Fig.1.1).

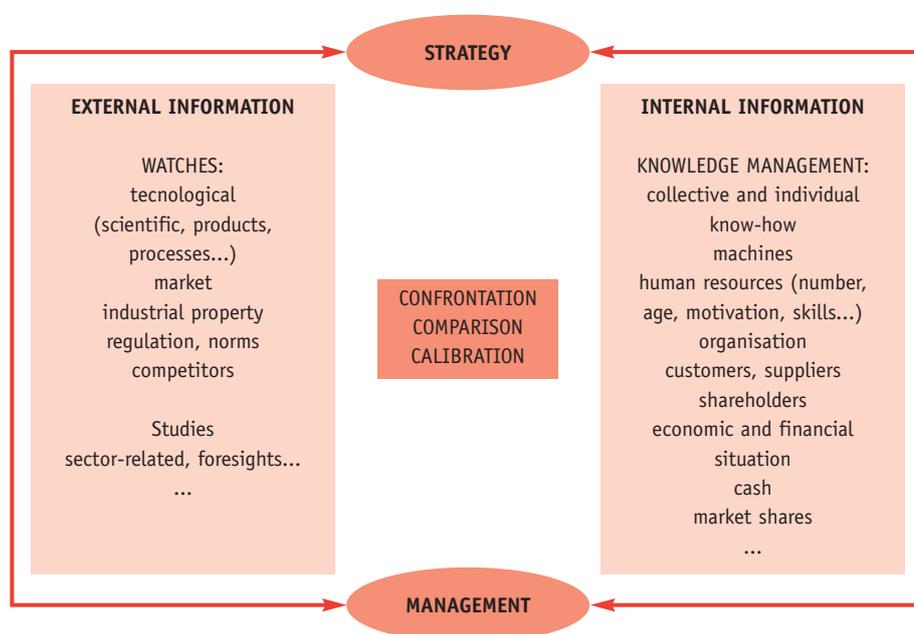


FIGURE 1.1. STRATEGIC IMPORTANCE OF INFORMATION MANAGEMENT

The analysis of the internal situation informs the decision maker about the current situation of the company on the basis of explicit or tangible knowledge: procedures, machine and equipment capacity, the financial situation, organisation, stocks and tacit or intangible knowledge, know-how, human resources, customer relationships...

The external landscape provides other types of information: technology, regulations, market issues (products and processes, customers, competitors, mergers...), and a vision of the future : technology and market predictions, political and social trends...

1.3. FROM DATA TO KNOWLEDGE

The consistent demand of the Economic Intelligence user is: “I want the right information when I need it”. But consistently getting the right information at the right moment can only be the result of a permanent intelligence process and policy established at the highest level of the organisation. EI is a permanent and iterative process, following the steps shown below in what we call the Intelligence Cycle (Fig. 1.2). No step can be by-passed without consequence.

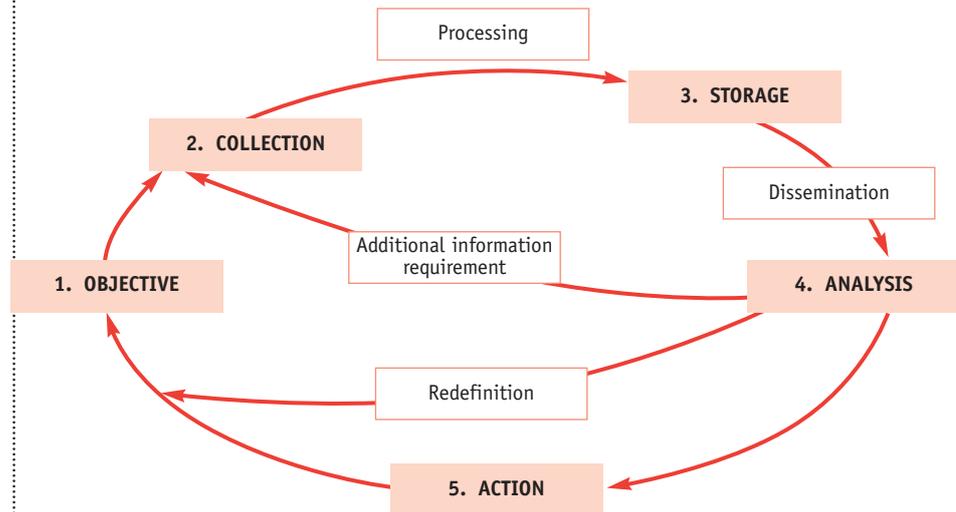


FIGURE 1.2. THE INTELLIGENCE CYCLE

Once the objectives and the SMEs information requirements have been established, the process of gathering, storage and analysis of the available information is focused on supplying the answers needed to facilitate decisions and then action.

During the cycle, feedback helps to fine-tune the intelligence process: e.g. defining the information required is needed not only in the initial phase but must be reviewed continuously, taking into account the information gathered and the new representation of the “world” it provides.

One of the challenges of EI is to transform the mass of **data** available in different forms, from many sources, which is often unorganised, and collected through several channels, into **information**, and then into **knowledge** and then into **intelligence**.

EI methods and tools can help in qualifying and validating the data collected from sources considered as reliable and build an information framework adapted to company processes and needs.

This step is critical because of the number of sources (foresight studies, magazines, professional publications, databases, formal or informal data on the web) and the topics they cover (processes, products, regulations, competitors – newcomers, mergers, partnerships, etc, customers, sector information, social trends)

EI is a never-ending task. The information has to be continually reviewed. In this way, once the intelligence cycle has been completed it is then re-started at a higher level of understanding.

1.4. BASIC CONCEPTS AND DEFINITIONS

The growing use of terms like 'information' and 'knowledge' in different contexts means it is sometimes difficult to be clear about what is meant.

We have adopted the user's perspective, utilising the user's growing understanding as follows²:

Data: Raw, unconnected figures, words, events, existing without a conceptual framework of reference. With the context missing, there is little or no meaning at all in the data.

Information: Where there is an understanding of the relationships between data, or between pieces of data and other information, but not providing a foundation for why the data is what it is, nor an indication as to how the data is likely to change over time.

Knowledge: When a pattern relation exists in the data and information, the pattern has the potential to represent knowledge, provided that the user is able to realise and understand the patterns and their implications. The pattern tends to create its own context rather than being context dependent, providing a high level of reliability or predictability as to how the pattern will evolve over time.

Intelligence (or wisdom) arises when the user understands the principles responsible for the patterns representing knowledge.

Our view is that information, knowledge, intelligence and wisdom are more than simply collections:

- A collection of data is not information.
- A collection of information is not knowledge.
- A collection of knowledge is not wisdom.
- A collection of wisdom is not truth.

To help the reader with these concepts we have provided a Glossary at the end of the guide. However, it is important to propose a definition of what the authors understand by Economic Intelligence in relation to other information management methods or disciplines currently in use with the same aims: innovating and facilitating the decision-making processes in organisations.

Economic Intelligence, concerns the set of concepts, methods and tools which unify all the co-ordinated actions of research, acquisition, treatment, storage and diffusion of information, relevant to individual or clustered enterprises and organisations in the framework of a strategy³.

These processes are coherent, permanent and interactive. They induce real changes in decision-making mechanisms. The development of EI in enterprises can affect all facets of the business (management, marketing, finance, production, organisation, research, human resources...). EI, based on a set of structured methods and tools, will bring about important changes in individual and collective behaviour.

Technological information (Intellectual Property Rights, research, products, standards, etc.), trends analysis and Foresight programmes have been at the forefront of intelligence methodologies and tools development in recent years, under the general heading of **Technology Watch**.

In addition, several other fields can be added – Competitors, Products, Markets, Customers, Suppliers, Regulations, Management or organisational trends, Finances, Public Policies... These are all in the arena of Economic intelligence.

Alternative approaches, including **Competitive Intelligence**, could be considered more or less similar to EI, as they are centred in market and competence issues, while the widely adopted **Business Intelligence** focuses on dealing with quantitative information – and the software methods and tools to process it, such as data mining or the data warehouse.

² G. Bellinger : *Knowledge Management—Emerging Perspectives*. (www.outsights.com)

³ EU Innovation Programme: INFOACT project. 1998-2000.

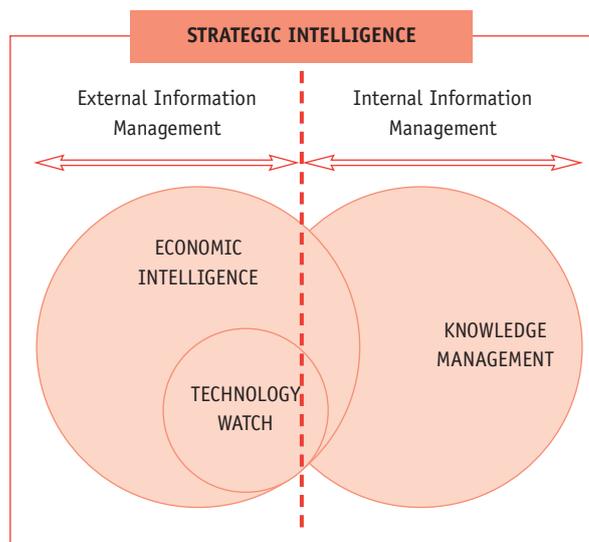


FIGURE 1.3. FIELDS OF APPLICACION OF THE DIFFERENT CONCEPTS OF INTELLIGENCE

On the other hand, **Knowledge Management (KM)** focuses on the existing knowledge inside the organisation, and ways of capturing it in a collaborative framework.

Other intelligence techniques and methods, such as Defence and Lobbying, are sometimes called Strategic Intelligence, but this is a concept that is not used in this guide (see Fig.1.3).

All these approaches working in relation to intelligence and decision-making are more or less well known in different countries and are conditioned by the management philosophies at work.

1.5. THE HUMAN FACTOR

The development of information technology and the existence of software tools covering various fields and facilitating information processing⁴ are providing a strong impetus to the dissemination of Intelligence disciplines, at the moment mainly amongst large companies. However, it must be stressed that the **human factor** is pivotal in the process of creating Intelligence in any kind of company or organisation. More and more sophisticated software cannot be relied upon to solve the question of strategic choice and arbitrate when there are actual or apparent contradictions, but human beings make the difference.

The definition of the intelligence problem, the development of information into knowledge and the decision making process, all depend on the human team at work and not only on the top manager of a company or an organisation. The integration of the different levels of responsibility - general management, marketing people, process management, R & D staff, finance..., enlightened by the EI strategy is the best way to help decision makers make the choices at any moment.

This human process is not an easy one, it must be encouraged by the top management, recognised as a valued skill, maintained for the long term and be facilitated by specialists, at least at the beginning or when strategy is refreshed.

⁴ See Fuld & Company, Inc: *Intelligence Software Report 2002* (www.fuld.com)

BOX 1

A CASE FIRM WITH CLEAR PRIORITIES IN ECONOMIC INTELLIGENCE

NOREMAT manufactures and commercialises equipment and replacement parts for road verge maintenance from Ludres (Lorraine – France) employing 120 people (c.pavani@noremat.fr)

The Information Management has been practiced since the Noremat creation in 1981, yet never named. The informal system instituted by sales agents acting via fairs, exhibitions, customer and prospect visits had often been implemented in a chaotic way causing many losses. The recent new organisation - with the staff doubled and 3 distinguished departments – has implied a more structured EI activity. A specific coordination system permits to define EI strategy and to control the accomplished actions. The current problems are discussed during the executive committee meetings twice a month. Once per year a shareholders consultation is followed by a strategic seminar with the help of an external consultant in order to define the guidelines for next year. On this occasion, the priorities for EI are also reviewed.

The information management is not a purpose in itself either, our innovations are not being done as art for art's sake – says Carole. The very first priority is to answer to the needs of our customers and to make our products the most suitable for our clients. Then, some transversal EI priorities remain constantly crucial: competitors, markets/customers, technological issues, legal regulations, the company protection, intellectual property rights, and environment. Each year, during a strategic seminar, these priorities are discussed; the most important issues are put in motto for next year. For instance, the last year the accent has been stressed on information relating to export, this in the aim to anticipate a creation of a subsidiary in UK.

As EI become a strategic priority itself, a new position has been created and defined as consisting in conceiving and implementing of devices that should allow managing of any information of interest for the company. This position, entrusted to Carole, is a kind of driving force behind usual activities of employees. Carole is in charge of dealing with the existing network of people and canalising the activities that they always have been doing. She is a constructor of the skeleton, making it running and controlling its performances. But still, the real work of collecting, treating and sharing the information is of sales agents and any other employee.

The very first problem was to find a clear name for this new position, as the EI was not very well known by staff. Eventually, the name “in charge of information management” has been chosen as the most speaking for itself. Nevertheless there are still some confusions between communication and information concepts, some persons still ask me “is it you who makes a poster advertising for Noremat?” Thus the only way to advance is to progress step by step, by simple, concrete actions:

- **Making employees aware** that EI is a collective activity and that everybody is supposed to be a sensor of information. Carole started with all employees’ encounters serving to prepare her first report and diagnosis. Since, she meets each new person entering the company. The staff is also made aware of the EI issues during annual assemblies.
- **Creating of a dynamic file with names**, phone numbers, mails and functions of all staff as well as working out a special procedure to organise people for updating and diffusion of the file.
- **Distribution of reviews** by an organized circuit with reply coupons and the possibility of making comments.
- **Sales agents rapports improving**: focus them on the strategic questions, streamline a posterior analysis, diffuse them within the company in the most optimal way. *Nevertheless, we are still better in diffusing and sharing of raw information than of analysis. It is to be improved.*

- **Organising of the files on competitors.** The unique file by each competitor has been realized and all selling team provided with. Nowadays all staff is in charge to update it permanently and the process is coordinated by one person.
- **Indexation of national and European regulations and patents** relating to the company profession. This shared file allows to put into memory any internally available documentation, and to facilitate the search.
- **Indexation of the company patents** with the aim to prepare the sales agents to detect possible infringements. *Our innovation strategy is conditioned firstly by clients needs and secondly by the imperative of protecting our inventions and defending our rights. The accent is stressed on patents applying in the very beginning of innovating processes.*
- **An internal letter edited twice a month** containing at the moment a presentation of one person from the staff. *Since the staff doubled we really do not know who is who. Knowing better people equal sharing information more efficiently.*
- **Organising the outgoing information** via “tour démo” organised each year following the national bi-annual fair SIMA. The sales agents go round the country and meet clients in strategic spots. This year a questionnaire has been diffused during event. The feedback is an excellent source of information on current commercial and technological tendencies.

However, the most important EI concern remains a human factor. The management does not wish to see the company too much subjected to the executive instruments and to distort the system elaborated in a family-sized framework. The electronic tools are not considered as of high priority as containing a risk of a total formalisation. A margin of freedom for spontaneous actions is crucial. *We are still in the experimental phase, the information is dealt by human beings developing in theirs jobs, making errors, testing, progressing, ... In that way, the EI within Norematt is a moving system, never defined in a definite way but permanently conditioned and shaped by humans. My work is essentially dealing with a human network and mobilising people in a common-day exploring information for better anticipating. The tools used for this aim remain behind - says Carole.*

2. Putting EI to work

Introducing an EI approach means both organisational and procedural changes. An audit of the existing EI process is a first step – as a way of understanding how information flows in the organisation. We propose a process framework for EI which suggests that the key elements include defining objectives, understanding how information is identified, collected, organised, analysed and validated, reported and disseminated. We have suggested that management backing and an inclusive approach are essential to success. We have made some practical proposals in relation to establishing EI or an EI Unit in an organisation and we have illustrated the different types of EI functions which we have seen in operation.

2.1. MATCHING EI WITH ORGANISATIONAL SYSTEMS

The organisational structure is an issue of central importance to the process. In fact, EI cannot be introduced without some procedural and structural changes. New roles, tasks and relationships will need to be created and shared by everyone. Everyone involved needs a clear picture of who does what, who must work with whom and so on.

All organisational structures are made up of two principal kinds of elements: “**hard**” - the structure itself and “**soft**”, the corporate culture and its interpersonal relationships.

The structural (hard) components of an organisation, include:

- vertical relations between different hierarchic levels;
- horizontal relations between units of the same level;
- functional relations which connect line and staff;
- operational systems which aim to improve co-ordination and control

But the main reason for any organisation’s complexity is the human element, the “soft” part, because the behaviour of each person is conditioned by many factors, including his/her values, needs and skills.

Organisational models try to define a role for each member - but in practice real behaviour can be different and a parallel “informal” dimension is developed which may create some internal conflicts.

Of course, a correct organisational model does not exist. It depends on strategic choices, internal processes and elements, the external and internal environment and the internal management culture.

When introducing a process into an organisation it has to be remembered that information flows generally follow the internal organisational structure, therefore an analysis of the organisational system is the starting point.

2.1.1. THE ORGANISATIONAL DIAGNOSIS

In the implementation of an EI process inside an organisation, it is important to consider the impact that this can have on structure. In order to avoid wasting time and resources making the wrong choice, it is best to start the process with an organisational diagnosis. This should analyse both the hard and soft elements, with the aim of discerning the way they function with respect to the company mission and objectives.

The “organisational diagnosis” should be comprehensive, including the analysing of the firms ethics, the company’s well being, and other “soft” components.

Hard aspects:

- Strategic-structural: law, politics and economic aspects of the working environment
- Functional: planning, comparing results with efforts, role and task distribution

Soft aspects:

- Psychology: organisational climate, motivation, various levels of communication, leadership style, problem-solving capability and distribution of power

- Psycho-dynamic area: peer to peer relationships and relationships between different hierarchical levels

Without entering into the details of the tools needed to carry out an organisational diagnosis or attempting to list all the cases in which it would be advisable, it is probably sufficient to highlight the importance of tackling organisational problems with rigour from the beginning.

2.1.2. INFORMATION FLOW ANALYSIS

An internal analysis of current information flows is the next key step. Here are the most important questions:

- How is information workflow currently achieved in the company?
- Is the current approach satisfactory? If not, why not?
- What is the current flow? (A chart would help)
- What is the corporate culture?
- Which channels do you currently use and which could you use?
- How do you disseminate information in the company?
- What kind of information is disseminated to customers or partners?
- Are employees motivated to disseminate information? And the managers? How?

Replying to these questions will help identify internal weaknesses and therefore provide an indication of how to improve the internal information flow.

We believe that the majority of EI implementation problems result from the human dimension. If new procedures are imposed from above and not shared by everyone within the organisation, the usual result is de-motivation.

2.2. THE EI PROCESS FRAMEWORK

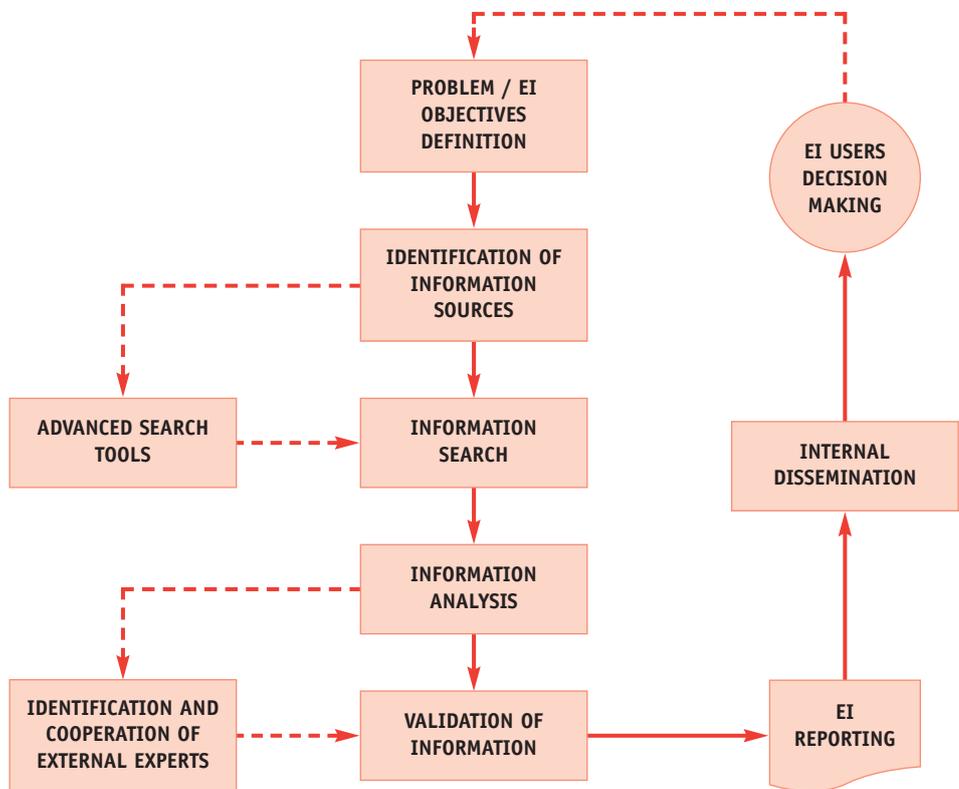


FIGURE 2.1. THE ECONOMIC INTELLIGENCE PROCESS

2.2.1. DEFINING EI OBJECTIVES

All companies have different reasons for undertaking EI processes. Some will want to use an EI system to support their strategic objectives (modernisation, innovation, expansion), others will be looking to develop new export markets or to expand and develop their product range to increase their market share. Others, may feel threatened by increasing competition and want to better monitor their competitors' activities. Being ahead of the game, means that any potential risks and changes in the external operating environment will be considered. For example, changes in national or European policy and legislation may have a significant impact on operations or at least require lobbying action at the earliest possible stage.

EI needs will vary according to the nature of the organisation - industry, size and whether they are public or private institutions. Begin with looking at where there is a real need for information – defining priorities will help shape the next stage of the process – collection. Information needs and priorities will change and develop over time so there needs to be ongoing input from employees. Managers and staff feeding into the process will ensure the EI system continues to meet the developing needs of the company.

Staff involved in day-to-day transactions with customers and suppliers may have good ideas about what information would give the organisation and those working on the 'shop floor' may also be able to identify weaknesses in existing products, services or production techniques that management may not be aware of.

It is vital that inputs from all sections of the company feed into the needs analysis. This can be achieved through open meetings, discussions, newsletters, intranets, etc.

The critical thing is to keep the information gathering plan focused and clearly defined in line with what is most important for the competitiveness of the organisation. There is no point in collecting masses of information that relates to broad themes of research but which at the end of the exercise, will provide nothing useful or will require vast amounts of time to sift through before finding what is sought.

For those gathering information on behalf of someone else such as the manager, director, customer or client, check with them first to ensure the gathering plan and timeframe fit their needs. Bear in mind, that some information will take several weeks to find and may not be cheap, for example, investigating the full text of a patent filed in another country will probably require a legal translation.

2.2.2. IDENTIFYING SOURCES, ORGANISING INFORMATION SEARCHES AND COLLECTING INFORMATION

Effective collection involves gathering the information from sources which will provide the best route to help turn information and data into company intelligence. Some of the sources of information might already be held within the company, such as local papers or trade journals. Collecting information is ideally done on two levels; in response to a particular request but it can and should also be ongoing, for example, information that is continuously collected about a potential export market or a particular industry.

Planning where to find the needed information and which sources provide the most critical data is a major part of this process. They may be local, national or global sources;

- Printed, online or electronic such as databases;
- Informal sources through personal contacts - personal interviews, meetings, phone conversations;
- Journals, periodicals, databases, reports, books, etc;
- In the public domain - trade shows, trade associations, government departments, Universities, internet, etc - or may involve more creative, so-called 'human intelligence' - interviews, personal observation, etc;
- 'Hard' information – for example, facts, numbers, graphs, charts;
- 'Soft' information – for example, opinions, rumour, newspaper editorials, customer surveys.

Primary and Secondary Sources

Primary sources are those sources which have not been altered, amended or interpreted and come directly from the source. Examples include annual reports containing facts and statistics, patent documents, court records, speeches and most data and information published by Government sources. Primary sources are ideal as they have not been tampered with in any way.

Secondary sources have been altered, edited or represent someone else's opinion. For example, a newspaper or TV report would be considered as secondary and all such information, although valuable, will need to be confirmed or validated and not just taken at face value.

Updating these sources and making these sources known to anyone who may need to use them, is a continuous process. A simple example would be setting up and sharing a bookmarks file for your internet browser with links to useful web sites and then disseminating this to others – a useful tool to help staff easily search and access appropriate information sources on the internet.

2.2.3. ANALYSIS AND VALIDATION

There is a massive amount of information available from a huge variety of sources. The Internet, for example, provides an almost limitless supply of information and many companies receive piles of trade journals and industry reports every year. Most don't know what to do with all this information.

Many companies may be able to identify good sources of information but can quickly suffer an 'overload' of information and be unable to draw out the key data required for analysis from the many fragmented pieces gathered. Or, it may be that even with mountains of information, there are still gaps that need to be filled and alternative sources that need to be targeted. Assessing the quality and reliability of information and determining its usefulness to the company is one of the most important parts of the EI process.

Having the skills and resources (human and technological) within your organisation to wade through raw information from a wide variety of sources is important. You need to be able to:

- establish which are the most useful and meaningful
- validate the reliability of sources in terms of currency, authority, timing and motives of the author
- objectively interpret and analyse statistical data and forecast trends
- understand industry 'clues' particularly about what the competition/markets are doing, and possibly even apply psychological analysis to the behaviour of your competitors.

Cook and Cook⁵ suggest that 35% of all time devoted to a particular EI project should be spent at the analysis stage but that, in practice, many companies spend far less than this. Companies tend to spend a far greater time gathering information than is necessary, either because they are not identifying or using their sources effectively or because they are simply gathering too much irrelevant information.

Gathering of information is also 'easy' and therefore not frightening, but analysis is more difficult and brings responsibility. Chapter 7 of this guide provides further information on analysis techniques.

2.2.4. REPORTING AND DISSEMINATION

This is the last phase of the process. For intelligence that has been gathered in response to specific projects, this will involve presenting the information in a clear and user-friendly way, perhaps in a short report or presentation to those people in the company who need to make a decision based upon the intelligence gathered.

Some companies that regularly carry out market research, find that a standard and clearly structured reporting template allows the user to quickly take in the key points and make a decision, particularly as those making the decision may not have much day-to-day involvement in the running of the project itself.

⁵ Cook and Cook, 'Competitive Intelligence'. Kogan Page. London. 2000

For a smaller company, it could well be that one person will be responsible for the whole EI process which makes decision-making a lot easier. However, even then, the results of intelligence gathered on a regular on-going basis may still need to be shared throughout the company so that everyone can use it.

For example, if as a result of research and analysis, it is concluded that your customers are unhappy with a particular aspect of the company's services and this needs to be quickly improved or, alternatively, a salesperson or someone else has found a piece of information which might be of use to other employees, this needs to be communicated quickly, either through email or meetings, etc.

It is important to encourage an organisational culture which is conducive to sharing information between departments and also upwards and downwards throughout the company. Everyone should be made aware of the information needs of the company and be encouraged to pass on information which may not be of relevance to their own jobs but which may be of use to others. Organising cross-department working groups on particular topics or some system of rewarding employees for contributions may be useful. Thanking staff for their efforts and explaining whether information received is of use or not, are simple but important means of feeding the process.

Dissemination also means having the storage systems which will enable employees to access information quickly, when it is needed. Storing key information in a central area, either physical or electronically, and having staff in charge of updating and safeguarding the information is a valuable asset. Information that is key to the company can be categorised according to a classification system so that information is not lost, is easily traceable and ensures central documents are readily accessible.

The final stage in the EI process is an ongoing process of assessment of the end results of the information flow which allows the decision-makers to determine whether the organisation's needs are still being met or if it is necessary to re-define the information needs.

2.3. IMPLEMENTING AN EI SYSTEM

There are many levels at which a company can choose to implement an EI system. It does not have to be a large and costly exercise to be effective, particularly if everyone in the organisation understands its role and importance, and feeds into the process. It does not have to involve a sweeping change but it is best implemented in stages. EI methods can range from simply focusing on one most relevant area such as improving information storage or allowing all staff access to key databases to the larger step of actually establishing a dedicated EI unit within your company.

Attitudes towards information is probably the key thing that will need to change within the company.

When building an EI system the critical step is to define the organisation's needs whilst still keeping it flexible enough to develop. Will the function be used for specific projects or for more general or strategic use? The EI system will need to be organised and structured to support the strategy process and the Economic Intelligence stages identified in Fig. 2.1 and should be embedded within the company accordingly.

Basic considerations that may be useful when planning to introduce an EI system follow:

- **Management Backing**

It is widely acknowledged that EI projects are invariably doomed to failure unless management give it and, are seen to give it, a place of high importance within the company. Management must back EI efforts in a cohesive way and communicate and promote how it works to all staff. Without this, those performing any kind of EI function will find themselves isolated and their actions will have limited effect. If an EI function or unit of some sort is to be established, it generally works better when it reports to senior management.

- **Educate Employees**

Building on the above, everyone in the company has a role to play in EI even if they do not have an EI-specific job description. All people should be considered sources and be encouraged to be aware of their company's strategy and to pass on any piece of information to the relevant people, as a matter of course. Traditionally, company employees have not been encouraged to share information, and there has often been competition between departments. Building a culture of information-sharing and breaking down inertia through education is a large part of the process. But as Kahaner notes 'Company spirit can take you just so far'⁶.

Some people, inevitably, may contribute more information than others but the system will still be yielding benefits. Some companies may choose to reward staff for their contributions, particularly in the early stages when there is a need to strengthen employee motivation.

- **A Team Approach**

Involve as many people as possible in the establishment of an EI system from all parts of the business - sales, HR/personnel, operations, marketing and communications, etc. This will ensure that it meets the needs of all sections of the business and will, in turn, be likely to make people more accepting of it. They will learn how they too can play a role, why their input is needed, and what to expect in return.

- **Communication**

Communication and open information channels are key to the success of any EI activities. Regardless of where you choose to place an EI-responsible employee or an EI unit or whether you simply wish to encourage employees to employ EI techniques on a day-to-day basis, people must talk and communicate with each other effectively.

Ensuring that there is adequate communication and **information infrastructure**, be it through email, intranet, bulletin board, meetings, newsletters, and changing the way in which information currently moves about within the company, will prevent people/departments becoming information 'islands'.

Communication technology - fax, email, mobile phones, portable laptops can all aid in transmitting information. Raising internal awareness of the email address, fax or phone number of an employee responsible for information handling, is also recommended. Building an intranet can also increase the accessibility of information for employees especially when linked to databases, but requires staff to be motivated and encouraged to participate. Information must flow both downwards and upwards through the company.

- **Information Technology**

IT (Standard software - word processing, spreadsheets, databases, etc and network applications - electronic mail, Internet, web browsers) can make information systems faster, easier, better and more accessible. But investment in new IT may be costly and may not always produce the intended benefits. Some challenge the tendency to mistake computer literacy for information literacy. 'This is a dangerous myth for it assumes that information is only that which is storable and manipulable in a computer.'⁷

If your staff spend a lot of time handling large amounts of data and information is required quickly, then a computer database may be useful but low volumes may be more easily handled manually. If graphs and tables are needed, perhaps for presentations to be made to clients, a PC-based package and a good colour printer will help to produce professional-looking reports or slides. If your financial information is held in ledgers and only useful to accountants and you are unable to extract useful information about customers, cash flow, etc then new software may be an option.

Subscriptions to commercial databases (Dialog, Datastar, etc) can be a good source of reliable, validated and exhaustive information about competitors, patents, etc. They also have time-saving benefits but most services are not free.

Networked systems can vastly improve information flow around your business but if you do decide that IT can add value to your business processes, you will need to ensure that you have

⁶ Kahaner, Larry: *Competitive Intelligence*. Touchstone, 1997

⁷ Taylor, Robert S (1986), *Value added processes in information systems*. Norwood, N J: Ablex

the capability and training to make it work well. Some industries do not seem to need as much IT as others.

- **Appointment of EI Personnel**

Deciding who within the organisation will be the focal point for information management and who has responsibility for what in the EI process will help the system to run smoother. Whoever is appointed within an information role must be an effective communicator as they will be responsible for co-ordinating information flows around the company. They must also be given sufficient time to do the role effectively. Breakthrough improvements often come when a one-off study is carried out by someone who has the time to look at data and challenge some of the conventional company wisdom.

Appointing someone who has a background or expertise in information science or has experience of research and/or analysis will also be an advantage.

2.4. TYPES OF EI FUNCTION

2.4.1. THE DAY-TO-DAY SYSTEM

Some companies, particularly those with a small number of employees, may want to build an EI system, ie. a day-to-day system for managing information within the company rather than to answer specific research problems. Such a function will help to build a knowledge or intelligence base within the company to help decisions to be made that are crucial to a company's growth or survival.

The following could be considered:

1. Carry out an audit of what information is already being gathered within the firm – who is already subscribing to trade journals, collecting industry reports, etc and where are they being kept. Individuals are probably collecting all sorts of newspaper articles, magazines, etc and working in their own EI 'bubble'. In most cases, the raw detailed facts exist already in large volumes within any organisation.

This audit should include the various databases currently scattered and managed between different individuals as well as human skills, such as language ability. Having an in-house inventory of all information held within the company can result in significant time savings.

2. Consider which information is of most importance to the company's strategic development and should be held centrally. Break this information down into 'manageable' areas. The list might include: customers, sales information, pricing information, raw material information, suppliers, contracts, journals, news articles. The most important ones may be written up as formal procedures so that all staff are aware of what information should be gathered and what is already available.

If information about competitors is important, perhaps a file on each competitor could be opened containing details such as product information, management information, company background and strategy, financial information, employee information, marketing information, R&D and patent information.

If customer feedback is to be collected, it should be viewed constructively as an opportunity for improvement. Specific objectives may be⁸:

- Collect all customer comments/surveys/complaints and record in a central file or database
- Send each complaint to the responsible person for action to be taken
- Record in the central file, the action taken
- Analyse the numbers of and types of complaint monthly
- Produce a graph/chart of complaints by type available for all to see
- Send a monthly summary to all sales staff and to management meetings.
- Colour-coding or some other system of classification for paper documents can also be useful.

⁸ Hanage R., *Making Information work for you.* 1995

3. Develop an area within the company, perhaps a separate room or a work area dedicated to holding information of central importance – both paper files and also secure computer(s) holding electronic information such as telephone lists, customer/supplier contact details as well as internal databases and any commercial databases that are subscribed to. (This assumes that there is no company intranet in operation).
Establish open access for those who need to use them or a reference only section, as appropriate. Decide who is to be responsible for updating information and safeguarding it. It may be a good idea to include an adjacent reading area somewhere in the workplace and have copies of daily newspapers, press cuttings and magazines available.
4. Establish what information is still needed to be gathered into the system and alert employees to this.

2.4.2. THE EI UNIT

Some companies may wish to establish an EI Unit in one form or another. Although a fully fledged unit will require resources, smaller or simplified versions are possible for the smaller company. The structure of your EI system will depend largely upon the needs of your company and who and where the company's decision-makers are. An agile and integrated EI service will act as a focal point for information in the company.

Version One: The EI team

This option often applies to the larger company with a high number of employees and resources. It may involve specialist positions for corporate librarians, researchers, analysts and other information professionals. Whilst a day-to-day system is also likely to be in operation as described above, this dedicated team will also be organised in order to respond to specific needs and requests. For example, the Managing Director may want an analysis done on the financial performance of a competitor. There may be separate people dealing with the background research and then the analysis. Such a unit is also able to carry out scenario planning to feed into the company's strategic direction.

Version Two: The One-Person EI function

More and more smaller companies in Europe are opting to appoint one person to fulfill this role either as a full-time post or possibly as a proportion of someone's job tasks. Preferably, qualifications or experience of information handling are needed for such a role. Having the technological resources to support this role will also be an advantage.

Typically, this person will be responsible for managing the day-to-day EI function described above by acting as a central point for collecting information, distributing information that comes from management, updating the central databases, telephone list, etc. This person may also be called upon to research specific queries. Companies that operate project-working in teams often manage their own specific EI project needs but can rely on this person for the information research needed or feed back the results of their own exercises. All teams should feed back the results of their information-gathering to this central point. Obviously, communication skills are a big advantage in this role as well as strong management backing. In both versions, the company may choose to employ paid external experts to carry out distinct projects such as market research or to make use of specific skills such as analysis or project management skills. This may have the advantage of providing an objective, unbiased approach from outside of the company.

Some business support services may be able to offer free or subsidised consultancy services (e.g. In the UK – local Business Links and Chambers of Commerce).

2.4.3. PLACING THE EI FUNCTION IN THE COMPANY

There are various options for where to place an EI function within your company:

a: Central EI function Reporting to Management

In many companies, an EI function, with one or more EI staff, may be placed so that it reports directly to the Managing Director (MD).

Staff in this role are often responsible for managing an information 'library' and central databases. They may, for example, record how many people use each database and their reason for using it as a means of identifying the importance of various information and helping to focus future information collection. They may also distribute information. It may operate as a service function to the whole company, in a similar way to an IT support function, for example. It is primarily a gatekeeper role and may, or may not, be responsible for responding to specific information questions.

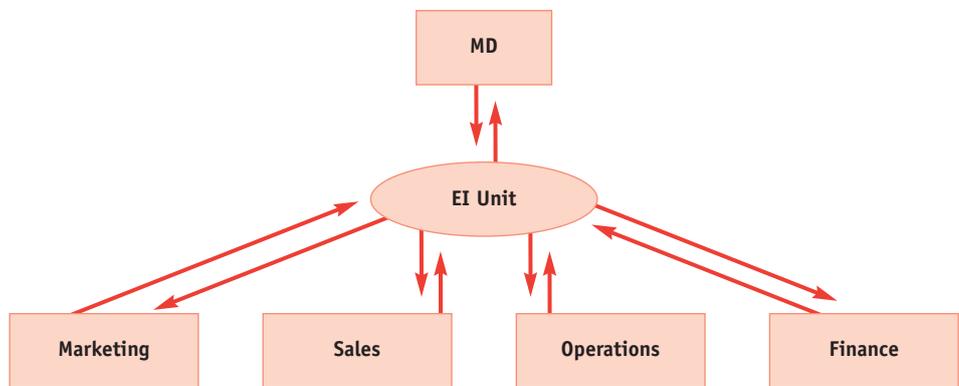


FIGURE 2.2.

b: EI function in One Business Unit

It may be an advantage for some companies to place an EI function within a particular department, possibly because that department may have more regular contact with customers or suppliers – marketing, sales or finance are some of the more popular. This model may have some difficulties as it is important that the rest of the company knows and understands the role of that department in the EI process as it may not be placed high enough within the organisation for all other employees to respect and use it properly.

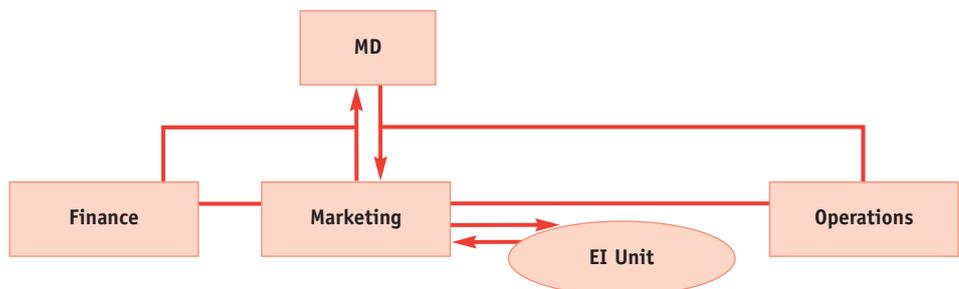


FIGURE 2.3.

c: EI function in Each Department

In larger companies, there may be a small EI unit residing in each department – sales, marketing, finance, etc. This model can work well to acquire more specialised information in each of the key business areas.

Again, it may not need to be a dedicated EI Unit but could be one key person in each department who collects information as part of their job.

However, in this case, communication and strong information-sharing practices between departments becomes key. It may be wise to retain an EI function which sits above the other departments to oversee and coordinate the EI efforts.

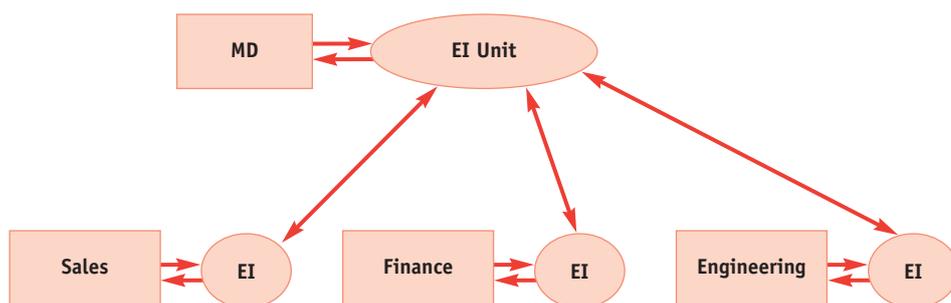


FIGURE 2.4.

Wherever an EI function is placed, establishing the lines of communication to ensure that information flows freely around the organisation is the most important factor.

Example of an EI Function at Work

A similar, smaller scale model to the above has been employed by a West Midlands, UK SME which carries out client-funded services such as market research in the biotechnology field. Employing around 25 people, the operation is divided into small project-based teams. Each team has a Project Manager. The research and analysis for each specific project is carried out by the project teams under the supervision of the Project Manager.

However, a one-person EI function also operates as a resource available for each of the project teams to perform more specialised search tasks or to find information which is difficult to get hold of. This information is then fed back to the Project Managers for their analysis. The one-person EI function reports directly to management and oversees a small work area dedicated to centralised information storage which is updated regularly, often as the result of information gathered for the project teams. The EI person is in regular contact with the Project Managers and also the manager(s) of the company. The post is able to play a key role in assisting the manager with decision-making affecting the company’s strategic direction as well as acting as a focal point for the dissemination of information both upwards and downwards through the company.

BOX 2

SYNERGY BETWEEN COMMUNICATION, INFORMATION AND TECHNOLOGY

Ksolutions S.p.a.- Gruppo Kataweb (www.ksolutions.it) is an Information Management firm based in San Martino Ulmiano - San Giuliano Terme (PI) - Italy

In an economic, political and social framework that is complex and changeable, success depends on the speed of acquiring and analysing information and on the ability of organisations to respond efficiently and in good time to the opportunity that the framework offers.

Therefore, based on this assumption, each organization must adopt, as a strategic objective, a suitable information management system.

Ksolutions an Italian SME located in Pisa, has acquired significant experience in the area of knowledge management and has developed a complete technology for the management and distribution of information.

In the beginning, in order to solve the company's internal problems, the main idea was to provide a complete tool to ensure internal information sharing and collaboration. As the system needed to be a real solution for accessing and managing internal and external information, Ksolutions analysed its own organization in order to comprehend the context where the application and employees work.

The architecture of the system was designed according to the information needs of the internal departments as they represent essential and indispensable conditions for management, naturally oriented toward the achievement of objectives and targets.

The specific aims of each department have been met through continuous monitoring of the variables of interest coupled with the company's instrumental policies for pursuing the strategic objectives.

In 2001 the *Corporate Portal*, a tool for structuring, organizing and consulting information was implemented. The product publishes, shares and easily locates the business and context information, "navigating the organization".

The tool, apart from being the company's portal, also became, above all, a guide for the integrated, flexible and safe management and circulation of information.

Thanks to the Corporate Portal, information can be used and analysed harmoniously, with ease and coherence and personalized according to the strategic and organizational business approach of the company.

The intelligent interface is capable of guiding users (whatever the level of responsibility and company position) in the acquisition of information indispensable for the assumption of decision and support of the operative phases.

In conclusion, the organization of a system managing dynamic and coherent information represents an indispensable tool for the effective and efficient implementation of an organization model.

3. EI practice in European SMEs

We set out to examine the level of utilisation of EI practices in European SMEs. We discovered that whilst a significant percentage of SMEs claim explicit information policies, those companies which were systematically turning data into knowledge and intelligence was much lower. Firms positioned within emerging sectors were much more likely to be users of EI techniques than those located in traditional industries. Our research also indicated that many more SMEs would benefit from the adoption of EI techniques or an EI strategy, and many were interested in considering the potential. The size of the firm has some influence on its practices, the larger the company, the more sophisticated its approach is likely to be.

3.1. A VIEW OF CURRENT EI PRACTICE IN SMES

In today's Information Society, the gathering of external information is key for European SMEs. However, little work has been done to understand either SME methodologies or practices. The gathering of strategic information, although not always called EI, is being carried out in all companies, but not always in a systematic way. Information is not collected in a very structured way. Little attention is being paid to any formal forward planning of information gathering.

However, there is evidence that many companies are becoming increasingly interested in this field. According to our study, a high percentage of the 400 companies surveyed are interested in the introduction of EI methodologies in their organisations, and wanted to learn more about the management of external information.

In general, there is considerable involvement of the top managers in EI practice. SME managers are conscious of the importance of the evolution and trends in technology, markets, clients, etc in order to inform strategy. Most managers want to reinforce the firm's policy in the external information field, and to motivate staff. Some managers are also very interested in using training in EI tools & methodologies, and some even hold a specific budget for the purpose. In practice, interest in information is shown by the high number of companies (more than the 40%), which claimed to have explicit policies on information or to have some kind of system for the management of information in operation. On the other hand, almost 25% of companies surveyed had no defined system and 11% of companies have not considered information management issues.

In those companies which have adopted some kind of EI approach, the role is usually found at top management level. Information management (collection and dissemination) is performed by individuals close to the Board of Directors or distributed fairly equally between different functional areas such as production or marketing.

Given the hierarchical structure and the strong centralisation of EI responsibilities in companies, information generally flows top-down. This is manifested in frequent information exchanges between staff and departments, using traditional methods such as meetings, e-mails, reports, personal contacts, and non-traditional methods such as intranet and information systems but not, however, in any systematic manner.

Data collection, relating to competition, markets and technology is a regular activity based on needs emerging during internal meetings, but it remains linked to personal initiative. In some cases, steps are being taken to ensure that regular information is received, but no explicit planning exists. Internal distribution systems for information are not commonplace with only 30% of the companies we surveyed having such systems.

In the majority of companies, there are few human resources specifically devoted to EI tasks, although it seems that the interest in this is increasing.

As the importance given to information management in companies increases, centralised systems shift towards distributed systems and to specific personnel in charge of EI. The internal structure of some companies is changing to allocate economic and human resources to the EI process. SMEs are even hiring people exclusively for the management of information (about 2-3 full-time people in companies with around 100 employees).

We found that there is limited exploitation of information. The reasons for this include the lack of technical and human resources devoted to these tasks and the lack of a defined methodology.

The most widely used information sources in order of importance are publications, the Internet, personal contacts and public events, although the differences between them are small.

The frequency of Internet use for information searches can be correlated with the interest of companies in external information in general. 82% of the companies which showed a strong interest in information, use the Internet regularly. However, advanced functions on the Internet, such as alert systems, are used by very few companies.

The Internet is recognised as a valuable source of external information, a route to information, news, ideas and a way of sharing information on new markets and common issues.

Although the Internet has introduced an important new source, traditional sources of information (fairs, magazines,...) are still better managed than the information obtained from the Internet.

When an information management system is at work, the collected information is analysed (not always by specialised staff) and validated through cross checks often using external expert advice and opinions. Only in rare cases is the information manipulated. Storage systems are also few and far between, being limited to general data.

The SMEs seem predictably weaker in the dissemination and sharing of information. Very often, information is not worked into a common format for distribution within the company. Initially, it reaches the top management, generally through meetings, then, only when they think necessary, does it cascade down to lower levels. The discretionary power of each individual and the lack of analysis and a sharing phase is a common element found in the majority of the SMEs.

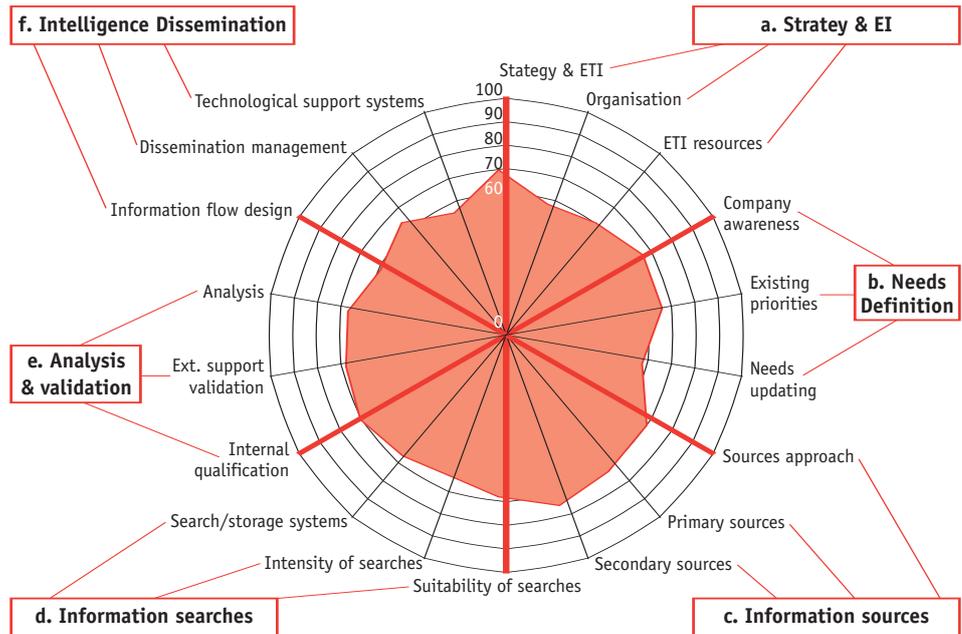
EI in European SMEs

- The awareness/knowledge of terms related to information management is relatively good. Knowledge Management is a term that is better known, Economic Intelligence is the least recognised.
 - More than 70% of companies say information is of high importance
 - More than 50% of companies have an explicit policy on information management, and about 47% of companies have some kind of information management system running.
 - Knowledge about EI methods, and quality of information management systems are not high, even when there is a strong interest in training in EI methodologies.
 - Both centralised and distributed systems are used in the management of external information in a similar proportion.
 - Only 7% of companies have staff specifically devoted to information management
 - Information collection is mainly carried out through personal actions and internal meetings. 30% of companies have internal dissemination systems, but 25% of them do not have a defined pathway.
 - SME interests can be ranked as follows: 1. market/companies, 2. standards/regulations, 3. technology and 4. Miscellaneous.
 - Publications, internet, personal contacts and collective events are all used as information sources in about the same proportion. Publications are the main source of information followed closely by the Internet.
-

3.2. A BENCHMARKING OF EUROPEAN SMEs DISPLAYING SOME LEVEL OF EI EXPERIENCE

The previous section provided a general view of EI practices in SMEs. We now look in more detail at those companies which consider the management of information as a key competitive issue. The general EI position is a long way from excellence and there is clearly a great deal of room for improvement in EI methods.

The Cetisme project benchmarking analysis, based on the Economic Intelligence Process was conducted on a sample of 48 European SMEs. These companies were selected because they had regular or advanced EI practices, in order to study their degree of innovation. A summary of our findings is shown below.



Results of the Benchmarking Study carried out in 48 selected companies with advanced EI practices

A defined, established and validated EI system would represent 100% achievement of objectives in the study. EI practices are, in reality, at an average level (60-70% of objectives)

Only 33.3% of parameters studied achieve 70% of objectives; 55% are between 60-70%, 11,1% is below 60%.

In general, the awareness of the importance of information is better defined. The identification and management of information sources scores highest. However, the parameters relating to the application of these intentions are weak. It seems that despite good intentions, managers are not putting them into practice. There is little structure in the process and this is hampering the potential benefits.

FIGURE 3.1. AVERAGE SITUATION OF ETI PROCESS

a. The relationship between Company Strategy and Information Management Policy

- Strategy and information management are generally linked, but this relationship is not usually formalised in any strategic document.
- The responsibility for EI tasks is only occasionally allocated, with the management of information being a day-to-day practice without any established procedures.
- EI tasks are usually done by 'technicians', well qualified, but with no specific training in EI. Moreover, the resources devoted to the EI tasks are not usually defined. The data shows that although information is considered important, it is not so important enough to be considered separately.

b. Defining the Information Needs

- The definition of information needs is rarely done at top management level, and is normally the task of departments, with little intervention or co-ordination by top management.
- There is a general understanding of information needs but no clear and established objectives.
- Needs updating is a problem. SME performance against this parameter is one of the worst in the study. External information needs are updated occasionally and spontaneously. There is clearly little or no feedback into the Intelligence Cycle and information needs are not being constantly reviewed.

c. Identifying the Information Sources

- The management of information sources is one of the areas where SMEs perform well. Objectives are being achieved in 75% of cases. Information sources and their reliability in each particular field are usually well defined even though procedures for the systematic identification and evaluation of new information sources are missing.
- Primary sources are also well identified in particular fields including better qualified sources than traditional sources (customers, suppliers, competitors,...). Secondary sources used are both traditional and web sources.

d. Searching for Information

- Information searches and storage procedures seem to be ill-defined. The motivation for searches is neither focused on the particular needs of departments nor in line with strategic EI plans.
- Searches appear to be carried out in an incidental way meeting occasional needs, rather than following an organised approach.
- The information recovered is stored using traditional systems both individual and shared, but there is a lack of advanced automated systems for information searches and storage.

e. Analysing the Information

- The analysis and validation of information obtained is a weak point in the EI practices of the companies. Staff dealing with the analysis of the collected information are qualified but the effort devoted to analysis and validation appears to be limited and lacking in focus.
- Most companies have identified external experts in their fields of interest but they are seldom used to validate the information recovered.
- Systematic and advanced methods to perform the analysis (supported by software tools) are not used.

f. Disseminating knowledge

- SME performance in the final stage of the EI process - the dissemination of the results - is lowest of all. The information flow is not usually designed to meet needs (e.g. on a defined profile basis). Rather, information is supplied in a collective, indiscriminate way.
- Feedback about the suitability of information is non-existent, showing again that EI is not being organised as a process.
- The technological support systems used for information dissemination are usually internal e-mail and intranets. Advanced systems for the management of both external and internal information (e.g., linked to Knowledge Management systems), are used in only a handful of companies.

3.3. EI PRACTICE DIFFERENCES IN REGIONS, INDUSTRY AND COMPANY SIZE

The study⁹ has shown that there is a need for EI as a tool for innovative management. Most SMEs rely heavily on personal experience and on individuals' own intuition to determine priorities and needs for information collection and analysis rather than having a documented strategy. Information gathering and analysis is a subsidiary task to everyday business activity for the majority of SMEs, which do not usually consider knowledge management as a resource. They only collect data or information according to day-to-day needs, with no strategic or systematic approach, and collected information is rarely upgraded to knowledge. There is a general view that knowledge is power and this is kept at the top of organisations. Information flow is not often disseminated downwards. It remains each individual's and management's "personal" property. Usually top-down information flow reaches only managerial levels and strategic information rarely permeates the whole company. The present level of awareness in relation to the importance of systematic information management for company administration is not high, and the activity is still viewed as a drain on financial and human resources rather than an investment. However, demand and the need to enter new and future markets are making management more sensitive to these issues. The use of EI in SMEs is changing. Managers are aware of the importance of information, acknowledging that their information management systems could be more effective. They can see some of the potential of access to original and cheap sources of information, increasingly supported by net technologies and new software tools. Industry and company size differences seem fairly predictable. The analysis in relation to regional differences is inconclusive.

3.3.1. INDUSTRY DIFFERENCES

Important differences exist in the EI process between companies in the innovative (ICT and biotech) and traditional industries (metals, materials and textiles) in the sample. EI methods are better developed in the innovative industries. Thus, the highest proportion of companies with an information management system implemented are in the innovative sectors (ICT and biotechnology). The ICT industry has the leading position in the gathering of information by use of systematic internal dissemination systems.

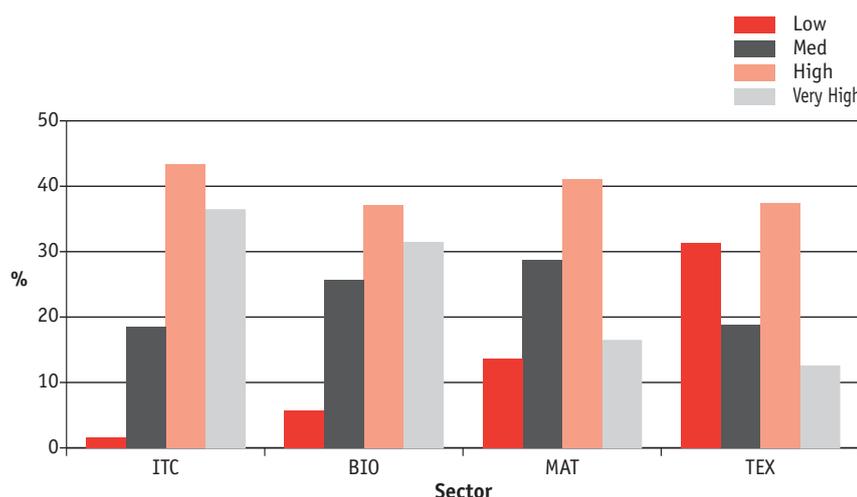


FIGURE 3.2. IMPORTANCE GIVEN TO THE EXTERNAL INFORMATION

⁹ Companies from the four regions participating in the Cetisme project were involved in the study: Madrid (Spain), Lorraine (France), West Midlands (United Kingdom) and Tuscany (Italy).

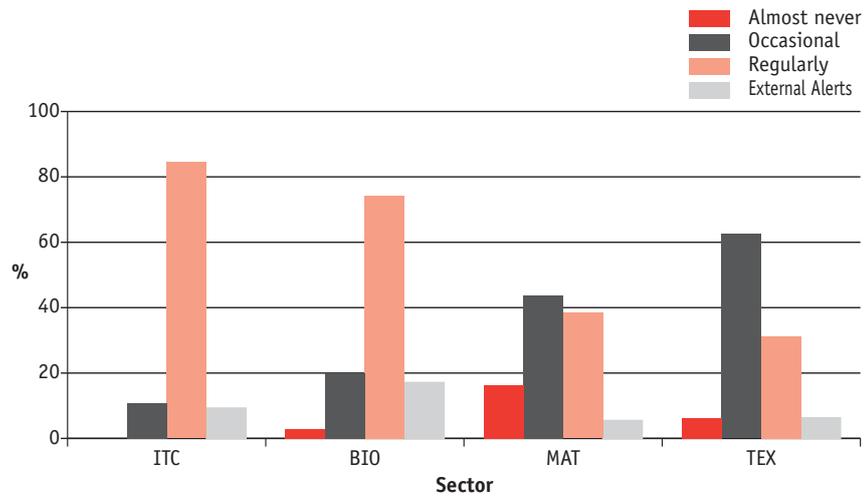


FIGURE 3.3. USING INTERNET

The traditional sectors show a less advanced position in relation to Internet use as an information source, especially the textile sector, which also shows a lower understanding of EI tasks and responsibilities and has less staff devoted to EI roles.

3.3.2. COMPANY SIZE DIFFERENCES

The size of a company has some influence on the management of external information. Compared to smaller companies, in general terms, larger firms link external information to strategy and show more interest in work procedures and methodologies aimed at improving the information management.

This higher awareness is also evident in the organisation of the EI process. In larger companies, the responsibilities for EI tasks are allocated, either to the Board of Directors or distributed to the different functional areas. The centralised systems existing in SMEs change towards distributed systems in larger companies.

In small companies, there is uncertainty surrounding the flow of information, with more than 15% of SMEs having no defined responsibilities. The main way of acquiring information is through personal actions and internal personal contacts, whereas in larger companies, the information follows a more defined pathway, and the internal systems for dissemination of information are better established.

SMEs are aware of the new information channels, and they regard the internet as a very important source in the same way as larger companies. The most important differences between small and large companies seem to be related to the organisational approach to EI tasks. The focus on information management becomes more and more evident as the company increases in size.

3.3.3. REGIONAL DIFFERENCES

Results show that EI practices in all regions seem to be homogeneous, but do not allow firm conclusions. Some observations can be made, but may not be entirely sustainable, because of the composition of the sample. For instance, the better practices found in Tuscany in the use of technological support systems are likely to be related to the higher presence of ICT companies in that region's sample. Similarly, the better results for Madrid in information analysis may reflect the higher number of biotech companies considered in the region.

4. Expanding the use of Economic Intelligence

The use of EI techniques is on the increase, with larger firms leading the way. There is scope for using EI in other sectors – for example public administration, Universities and research centres. The internet is providing new opportunities and the market is delivering new solutions to the problems of information management. We believe there is a case for reflecting EI in regional policies and the Madrid Innovation Circles and Lorraine’s DECI-LOR projects are leading the way in this context. There is a case to encourage intermediary organisations to become aware of the value of EI and its accompanying tools and techniques. Initially this may need public support, but eventually the activity should be self-sustaining. We then illustrate the range of SME EI competences we have discovered through our benchmarking research.

4.1. THE FUTURE OF EASY ACCESS TO INFORMATION

A wide debate is currently developing worldwide in relation to the accessibility of information. This is generally related to the pricing of information services. News services and newspapers, such as *Le Monde*, or large portals such as *Terra – Lycos* have embarked on a trend towards establishing prices for access to their high-level services, which up to now have been free. Nevertheless, the issue of the use of information on the internet is not the price, but rather the promising possibilities in support of intelligent decision-making offered by the enormous and ever-growing flow of information existing on the web.

Even though some information can be restricted - through price or “for members only” or made non-accessible due to a protection decision of the owners - it is important to remember that the amount of existing information represents a supply that, suitably accessed and exploited, can facilitate a large leap forward for EI.

The growing volume of documents and information accessible through the web is being accompanied by the advances in the availability of software packages capable of retrieving and storing information relevant to EI purposes.

The operation of search engines in a natural language with improved query methods is currently being addressed by the developers of software solutions¹⁰, adding intelligence to searches, to facilitate the analysis of the identified contents, and providing answers directly relevant to the problem proposed, as well as the combination of information deriving from different sources adds to the potential.

Further, the rapid development of the Semantic Web is important. (www.semanticweb.org) pursuing the idea of having data on the web defined and linked in a way, that it can be used by machines – not just for display purposes, but for using it.

The aim is to facilitate the provision of knowledge solutions for users on the basis of prioritisation of the relevance of the gathered information versus comprehensiveness. The trend towards structuring the web according to fields of knowledge and developing tools called ontologies, is resulting in new features of the existing and new internet portals. At the moment, a few generalist portals (*Yahoo*, *AOL*) receive millions of visitors. In contrast, the few specialised portals or web sites receive only a few visits. But this will change.

The development of search tools for EI purposes is ongoing, despite some difficulties which need to be overcome. Semantic analysis is one such step forward. It involves going beyond searching purely for keywords alone. Semantic analysis looks at the keywords and also the value given to them by the context of the sentence and the forms in which information can be accessed, for example, in different languages.

The need for integration (for business, government or citizens use) of knowledge derived from statistics or multimedia sources, such as animations or video conferencing also presents new opportunities for the development of EI solutions at a different level of application.

The present situation, in which software packages or search engines deal in a rudimentary way with the overabundant information available on the web, is slowly giving way to solutions able to deal simultaneously with different information issues. However this still falls short of the type of analysis needed to effectively support decision making.

¹⁰ A yearly competitive conference is organised by the American National Institute of Standards and Technology for text retrieval developers (www.trec.nist.gov)

4.2. EI METHODS IN NEW FIELDS

Under the name of Competitive Intelligence or Strategic Intelligence, EI has been widely used for a couple of decades in the most developed part of the world. Its practice was initially only introduced by large companies in the most advanced sectors of the economy, such as communications, pharmaceuticals, aerospace or defence.

As discussed elsewhere in this Guide, the deployment of information technologies during the eighties has led to the possibility of extending the EI applications to a growing number of sectors and companies. In particular, small companies are increasingly introducing intelligence techniques and tools – especially in emerging or dynamic sectors such as IT or biotechnology – for decision support in strategic issues.

Focusing EI activities towards strategic issues makes EI distinct from Knowledge Management, market analysis or library management. The use of information coming from internal and external sources is only a first step for EI. It adds value to the firm when that information is then validated, analysed, and applied to produce the needed intelligence which aids the decision and action.

Our experience gained during this process of analysis of EI for organisations that are not specialised in information management, supports the extension of its application out of business circles and into the public sector. In particular, two main types of entities could start to benefit from EI methodologies in the short term: research institutions and public administration.

Universities and research centres often recognise already the importance of EI techniques for the *ex-ante* evaluation and decision making on their research programmes and projects. As research activities are increasingly addressing issues and problems coming from the economy, their results are expected to be implemented or translated into commercial products or services. Therefore, the definition and planning of new research lines or projects normally includes an in-depth analysis of the exploitation of results prospects, including aspects of its innovative position in relation to alternative solutions or technologies, and an analysis of the marketability of the results ¹¹.

This approach applies equally to the evaluation of research projects during development. The decisions to be adopted are similar to those which need to be taken in business environments; therefore EI methods can provide similar benefits in this situation.

In the field of public administration, the changes brought about by the introduction of e-government and solutions for its application in different fields such as services to citizens, education or health, also pave the way for the use of EI processes.

Further, the definition of public programmes presumes not only the knowledge of the context in relation to whatever issue is to be tackled, but also a vision of its evolution in the future, with a clear view of any alternatives taken in similar contexts, and their results.

Evaluation of public administration programmes also requires an increasing amount of information and suitable tools and skills to cope with it. Pushing forward EI approaches in this way could lead to a parallel upgrading of administrative performance.

Furthermore, the results of EI methods of collection and analysis of knowledge, can be greatly enhanced when they involve predictive or econometric tools to supply scenarios to support the decisions of public servants and policy makers.

¹¹ Institute for Prospective Technological Studies: *Technology Identification Methodology IPTS-TIM*. Joint Research Centre –European Commission. 2000 (www.jrc.es)

4.3. EI AND REGIONAL POLICY

The introduction and development of EI in small companies in Europe, has to be considered in the light of continuous improvement methods in the pursuit of increased competitiveness.

The introduction and upgrading of EI from non formalised or individual intelligence practices, into a coherent approach will be greatly enhanced through the use of public policies and programmes which introduce practical support measures, especially for SMEs.

It is clear that there will be real value-added if SMEs begin to adhere to the idea of investing resources in this new and innovative method.

For this to happen, a wide network, formed by hundreds of organisations, innovation services centres covering the different European centres, including Chambers of Commerce, technology centres, Business Innovation Centres or professional and business associations, should be used to access the best methods and tools.

IT and management services firms can play an essential part in this. The involvement of EI in top management decisions, and its impact on the culture of a company, require individually framed initiatives and products. These will only be used when a company becomes convinced about the value of the practice and that external support is available when needed.

As far as the regional implementation and the dissemination of EI practices are concerned, it is obvious that political measures would also assist in the process.

We can distinguish three stages where the different players would be able to play a role.

a – Initiation of the Intelligent Process

Traditionally, this step involves public support. It revolves around a campaign of raising awareness by implementing the process in volunteer companies who, whilst acting as guinea pigs, will also act as disseminators of success stories.

This phase also involves setting up all the back-office functions (profiling of industrial branches, data collection, qualifying sources...) and the creation of the access portal where the SME can locate what it needs for its own individual research.

b - Assisting the Individual Needs of the SMEs

Once the SME circle becomes wider than the first few pioneer companies, and the needs of newcomers are dealt with, the situation will no longer require demonstration or champions. Different results should follow: either the public support will be able to further assist the increasing number of affiliated companies, or this is the point at which the intermediaries and the consultant agencies will come into play. The back-office can still be present and companies, intermediaries and consultants will still have access to it (under certain conditions: training, ethics...). However, the relationship between the companies and their support will become fee-based. During the demonstration phase it will be more or less free.

c – SME Independence

This is the ultimate phase. The back office is still active and the companies, having gone through the second phase, become autonomous not only in external information gathering but also in their internal EI management. They will not need to continuously consult their favourite consultant or intermediary. They will begin to enter new and more complicated areas (new markets, new competitors, diversification, acquisition or merger preparation...) and they can select the most relevant partner to help them - by themselves.

4.3.1. AWARENESS EXPERIENCES: MADRID INNOVATION CIRCLES

The General Directorate of Research (Community of Madrid) has developed different mechanisms to support SMEs in relation to Technology Watch and EI, in the framework of the Regional Plan for Innovation.

The main support action has been the creation of Innovation Circles, a part of the madri+d Regional Innovation System¹², created to help SMEs obtain and analyse critical technological and economic information, in order to improve strategic decision-making processes. Currently, seven Innovation Circles are at work, developing activity in seven strategic areas for the region; ICTs, Microsystems and Nanotechnologies, Materials and Manufacturing Technologies, Environment, Biotechnology, Energy and Agrofood. Management and technical support for the Circles is guaranteed by different Research Centres and University Departments based in the region.

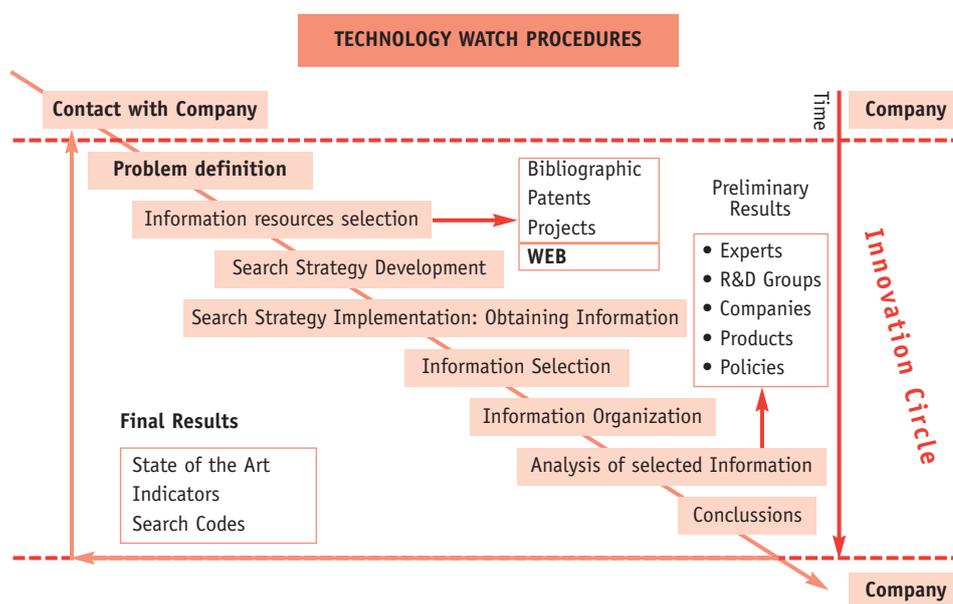


FIGURE 4.1. INNOVATION CIRCLES PROCESS

Each Innovation Circle is given the task of developing their Economic Intelligence / Technology Watch support activities through personalised services to SMEs based in the region, mainly in the field of technology intelligence. This process is helped by a wide network of 500 researchers and experts.

Complementary activities include training in intelligence methods and information search techniques, identifying appropriate qualifications for companies' staff and supporting the self-sufficient operation of EI.

4.3.2. AWARENESS EXPERIENCES: DECISION-MAKING IN LORRAINE (DECiLOR)

The Lorraine region's initiative demonstrates that a region can provide SMEs with what they themselves are unable to acquire - validated and qualified information which matches their business needs.

DECiLOR has established the necessary support systems: a central unit to animate the programme – Portal website – Regional Network, all of which are supported by a back office (see fig 4.2). The DECiLOR action plan consists of bringing together an economic and innovative development support system which integrates the methods and tools of Economic Intelligence – including the use of semantic tools which are a highly innovative way of processing data and information.

¹² www.madrimasd.org

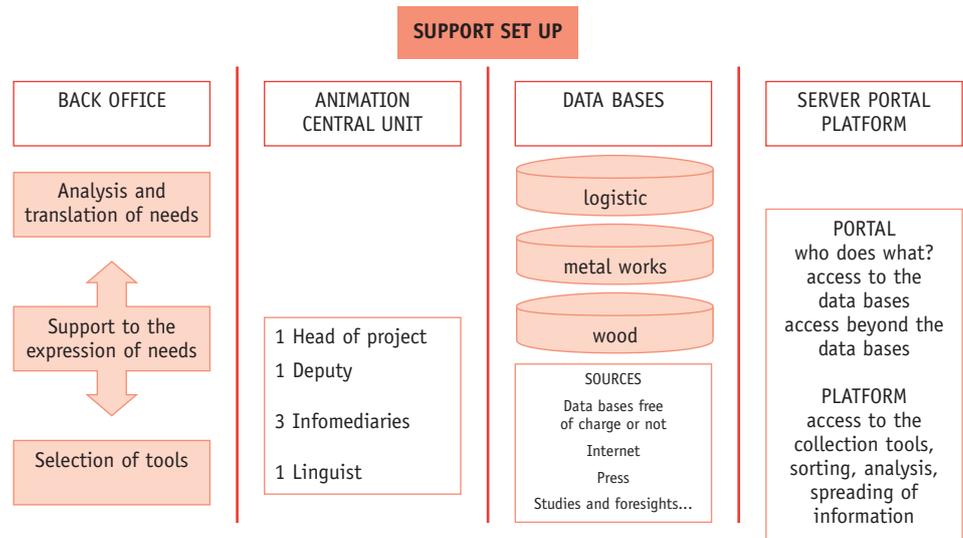


FIGURE 4.2. DECILOR SUPPORT SET-UP

This platform gives SMEs access to raw validated information. DECILOR will run for 3 years and targets 4 key economic sectors in Lorraine (wood, metal works, logistics, health sector¹³). The permanence and autonomy of the EI activity in Lorraine, after the end of the programme (Spring 2004) is based on the continued commitment of all the involved intermediaries (technology centres, Chambers of Commerce, professional associations), which will be in charge of awareness raising and dissemination methods, tools and results in the region's industrial sectors (see Fig. 4.3).

This action aims to be self financing as early as the 5th year of independent functioning. The total investment in this programme (including the Innovative Actions programme) will reach around 5 M. Euro, financed at 75% by the Regional Council of Lorraine.

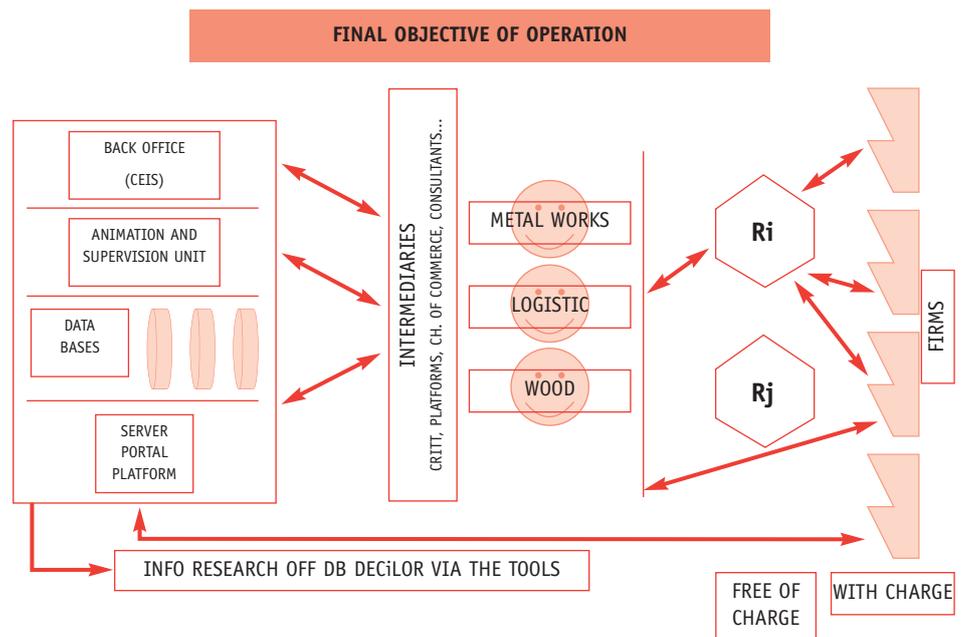


FIGURE 4.3. DECILOR STRUCTURE

¹³ The health sector is developed with a part financing of the European Commission (DG Regio).

4.4. ASSESSING THE COMPANY POSITION IN ECONOMIC INTELLIGENCE PRACTICE

The following tables describe the best EI practices found in selected companies in our good practice study, compared with poorer performance.

The reader can self assess the position of his/her company's current practices by selecting its position on the 1 to 5 - point scale provided (1 = Poor 5 = Excellent).

1. RELATIONSHIP BETWEEN COMPANY STRATEGY AND EI

<i>Poor practice</i>	1 2 3 4 5	<i>The best practice</i>
<ul style="list-style-type: none"> - The firm's strategy does not take into account the management of external information. - There is no specific procedure for information management. - The information role is not formalised but it is usually carried out by the board members, especially the Managing Director (MD), starting and stopping with him/her. - The information collected is neither shared nor distributed. 		<ul style="list-style-type: none"> - The gathering of external information is key to the company and drives the direction of the company itself and the delivery of client-based project work. - The external information gathered is used in the updating of the yearly business strategy of the company. The inputs from the functional areas and from customers are used to update the trends/changes that can give rise to the development of new markets or products. - An EI unit is specifically in charge of the information issues of the company. The unit works in collaboration with the other functional departments. - Every department in the company works in the EI process, and the responsibility of information tasks is distributed in the functional areas (including the EI department).

2. DEFINITION OF INFORMATION NEEDS

<i>Poor practice</i>	1 2 3 4 5	<i>The best practice</i>
<ul style="list-style-type: none"> - There is no formal stance on EI. - The general information needs, including marketing and technical matters, are identified by the MD. - There is no system to define and update the needs, this task is part of the everyday business. 		<ul style="list-style-type: none"> - The company has clearly identified, defined and even planned the main issues to be watched for a time period of several years. - The definition of needs is organised in a distributed way, and therefore it is carried out with the participation of the functional areas of the company and each department defines its own information needs. - The definition and updating of needs is performed in regular and systematic way, with established and periodic collective meetings or seminars attended by the Heads of the Department and the staff.

3. INFORMATION SOURCES

Poor practice

- The management is conscious of the importance of external sources but they do not allocate enough time to structure their gathering process, classifying sources and establishing their priorities.
- Using sources is an occasional activity rather than a structured and organised process.
- The primary information sources are customary sources: customers, suppliers, trade shows, ... and the internet to a much lesser extent.
- External information is considered more valuable than internal information.
- There is no real pattern in the use of secondary information sources. The main information sources are trade journals.
- The reliability of the sources is not considered as an issue, and personal judgement and experience are key.

1 2 3 4 5 The best practice

- The companies have identified reliable information sources in the fields of interest (and the identification and evaluation of the information sources is a systematic process) with established links in the case of primary sources.
- Primary sources cover not only personal contact with the network of customer-suppliers-competitors but they go further, with the identification and regular contact with an external information network specialised in specific subjects of interest for the firm's strategy (Intermediate organisations, consultants, Enterprise Associations, Chambers of Commerce, Technological Centres, Schools, Universities and Scientific Committees).
- The information obtained from internal sources is highly valued and frequently used in cases where the level of internal expertise is high.
- The traditional sources of information, mainly in the technical area, are used in electronic version when possible, as for example, periodical publications on-line or electronic commercial bibliographic & patents databases.
- The internet is widely used as a source of information, as much in technical areas as market/business areas. The information sources on the internet for every day work are clearly identified.
- Alert systems in subjects like new regulations, public support measures, conferences and events are also used.
- The range of sources is used on a regular, systematic basis.
- The reliability of the information sources is checked and compared with other sources or other company members.

4. INFORMATION SEARCHES

<i>Poor practice</i>	1 2 3 4 5	<i>The best practice</i>
<ul style="list-style-type: none"> - Information searches are done as the need arises. - The organisation of the search and storage of information is informal and little is computerised. - The use of the internet is occasional, not all members of staff have computers or access to the Internet. - There are no database or storage systems such as an intranet. 		<ul style="list-style-type: none"> - The information gathering is focused in particular departments or areas and is an ongoing process mainly depending on the project status. - The information collected is used in the re-direction of the strategic plan, so the gathering of external information is linked to the firm's strategy. - Search and meta-search free software tools and alert systems are used for information gathering from the internet - Information management includes the set-up of advanced automatic systems. These systems incorporate databases, links through the internet, and connect to the internal firm's Management Information System. There are mixed systems; Knowledge Management-EI systems.

5. ANALYSIS & VALIDATION OF THE EXTERNAL INFORMATION

<i>Poor practice</i>	1 2 3 4 5	<i>The best practice</i>
<ul style="list-style-type: none"> - The analysis of the information is undertaken just by the MD and the rest of the board. - The use of external experts is rare and limited mainly to customers, suppliers and occasional references to Sector Associations. - The information selection and filtering is done by personal judgement and no software tools are used for filtering and analysis. 		<ul style="list-style-type: none"> - The MD is in charge of the analysis of information of a strategic and directional nature. - The technical staff perform the analysis & validation tasks on other subjects. They are in-house experts in their own specific fields. The procedure includes the validation of the analysis by other internal experts from the same department or from other departments. - The company have their own networks of external experts based on their line of work. However, collaboration with these experts is not regular but occasional, by means of meetings or seminars, and under a confidentiality agreement. The experts are always paid. - Good practice includes having the experts organised in a permanent committee, which advises the top managers of the company. - Apart from common databases (like Access) for data-mining, no specific analysis software tools are used.

6. INTELLIGENCE DISSEMINATION

<i>Poor practice</i>	<i>1 2 3 4 5</i>	<i>The best practice</i>
<ul style="list-style-type: none"> - The dissemination processes are mainly informal and there is neither a specific procedure nor specific profiles defined for information distribution. - No different treatment is applied to different types of business. 		<ul style="list-style-type: none"> - The dissemination flows are established, defining both the person in charge of the dissemination of the information and the channel used. The responsibility for dissemination rests with the different managers in the fields of operation, project and marketing. - The analysed information is disseminated automatically by means of alerts distributed under a defined profile system using tools such as Lotus Notes. Personal subscriptions to specific information providers are established. - The best practice found also includes the use of KM systems.

PART II
A Guide
for Practitioners

PART II. A GUIDE FOR PRACTITIONERS

5. The information needs

- 5.1. Who might be interested in using EI?
- 5.2. EI users
- 5.3. Auditing the organisation's information needs
- BOX 3. Essential tools for surviving in the market

56

6. Searching for information

- 6.1. Searching information on the web and electronic bases
- 6.2. The use of traditional sources
- BOX 4. A firm taking relevant advantage of the Internet

66

7. The analysis of information

- 7.1. Methodologies for the analysis of information
- 7.2. Analysis tools
- 7.3. The skills needed
- BOX 5. External expertise supporting the EI process

78

8. Dissemination of information

- 8.1. Some patterns of dissemination
- 8.2. Open information access
- 8.3. Technologies can help
- 8.4. Confidentiality and protection of information
- 8.5. The ethical and legal framework for EI
- BOX 6. A firm with a Knowledge Management strategy

88

5. The information needs

We examine here who might be interested in EI and why. We also look at how the EI process works. EI practices are driven by organisational size, markets and top management, but EI can be used in any kind of organisation, small or large, regardless of sector or whether it is located in the public or private domain. We suggest a number of approaches to assessing EI needs, asking some important questions and provide some useful templates for those interested in experimenting in the use of EI.

5.1. WHO MIGHT BE INTERESTED IN USING EI?

5.1.1. WHO IS A DECISION-MAKER?

The collection and analysis of information is an activity relevant to all employees of all kinds of organisations, public or private. But ultimately, this information should feed into the decision-making process.

The decision-maker may be the Managing Director of the company who needs to make strategic decisions based on what is happening in the external environment in which the firm is competing. Decisions which affect the company are also made every day by managers from every business division or department – sales, marketing, HR, operations, etc.

Whoever the decision-maker, having the information at the right time helps turn information into intelligence and allows good decisions which affect the future of the company to be made.

5.1.2. WHAT INFORMATION IS NEEDED?

Whether a company has a dedicated EI unit or not, there will be staff involved in collecting information to inform decision-makers on two levels:

- Information collected in response to a specific request - for example: something as basic as 'What percentage of the industrial textiles UK market does company X hold?'
- Information collected which feeds into the company's focus or strategy and is designed to increase the company's awareness of what is happening in its environment and to keep it competitive. This sort of information collection is ongoing. It works with and supports all the other business processes within an organisation and should be able to tell you where your business is going. For example: employees can carry out weekly research by reading local newspapers and trade journals to keep up to date on local competitors.

A firm must be aware of market needs and its external environments in order to ensure that it is producing a product or service of value which will either maintain its position in the market or increase its market share.

Examples of external information factors that organisations could monitor are:

- Legislation and regulations
- Social trends
- Political trends
- Economic trends
- Competitors
- Intellectual Property/Patents
- Customers
- Technology developments
- World markets

5.1.3. WHEN IS THE INFORMATION NEEDED?

The key issue is whether to let the information flow by dribs and drabs to meet particular needs or whether to manage it like any other major business resource.

Businesses need to think about getting accurate, timely and relevant information to staff at all levels rather than letting it happen by chance or receiving it too late to be useful.

Information is needed potentially at all points of product development or the business planning cycle. However, there will be key points that will be different for each organisation. Burke and Hall ¹⁴ describe the points in the development or life cycle of a new product or service whereby different information needs (both external and internal) may apply:

<i>Product life-cycle activity</i>	<i>Information need/activity</i>
Generation of ideas for products/services	Brainstorming where data from diverse sources is linked, e.g. trade advertisements, market activity
Screening product/services ideas	Pitching of ideas against the firm's objectives and targets
Market analysis of the potential for the product/service	Market research
Competitor and collaborator analysis	Company information
Research and development into product/service	Technical, environmental, legal and patent information
Testing of product/service	Demographic information
Introduction of product/service	Sales – to verify commercial viability and assess the full market potential
Production of product/service	Production control (internally generated information)
Logistics of product/service handling	Distribution, warehousing and control, transport
Product/service growth	Monitoring of competition and promotion of the product/service

5.2. EI USERS

5.2.1. FROM CORPORATIONS TO SMEs.

- What research developments are happening in my industry?
- Who are my competitors?
- Where can I find partners to develop new products?
- How can I expand my customer base?
- How is my market environment changing?
- Is my intended new overseas market viable?

Some or all of the above questions will apply to all companies and organisations at some point in their existence. Information collection and storage is of importance to all organisations, large or small as all businesses need to stay competitive in an increasingly competitive business environment.

Larger, highly structured corporations will, in general, have more intensive information needs and have, not surprisingly, been the first to begin using EI methods and tools.

A large export-orientated company with a technologically driven product or production process, for example, will have important information needs in a wide range of areas including competitors, markets, overseas political and economic trends. A larger company is likely to have a dedicated Research and Development department able to track new technologies and patents and develop new products.

¹⁴ Burke M. and Hall H. *Navigating Business Information Sources*. 1998

On the other hand, a small company operating within a national market, may focus its information collection resources on local competitors and product development.

Most SMEs will, of course, not have the resources for an R & D department or an EI specialist unit with several dedicated members of staff but all companies can implement EI systems to some degree and provide beneficial effects for their business.

Providing top management recognise the importance of EI as a key business process, have clearly defined what their information needs are, and ideally, have a culture with a willingness to embrace change, EI can be used effectively within all businesses and organisations.

An SME should pick and choose those tools and techniques that can produce the most effective business results for them. This may mean something as simple as setting up a bulletin board, holding monthly information meetings for all staff, setting up bookmarks for key websites and circulating these to all staff. Or, upgrading storage systems, developing an intranet or subscribing to a commercial database may be your preferred methods. Basic measures such as allowing your staff access to a University library to study industry journals and relevant text books can encourage development and continued learning, helping to keep your company to the forefront of your industry.

Using EI tools and techniques does not have to mean having a specialised EI unit although having at least one key member of staff with an EI role incorporated into their job tasks will significantly help the process.

5.2.2. EI FOR DIFFERENT INDUSTRIES

EI users within different industries will have different information needs and systems. In an ideal world, all organisations could gather and analyse all aspects of external information but, by necessity, most organisations should focus on the key aspects of their business that drive and support their competitiveness.

The type of information required is influenced by the product, process or service provided by the company.

For instance, a manufacturer may own a patent for their product and so would wish to be aware of any other company infringing that patent. Consequently, they would need to identify and assess competitors' products, looking specifically at the technology.

In contrast, a consultancy firm selling their expertise rather than a physical product could be using tried and tested business methods (business methods are specifically excluded from patenting). These methods would be in the public domain and therefore tracking competitors' use of them would not be as critical as in the previous example. EI for this firm would be more targeted at comparing the pricing policies of their competitors against their own policies and also analysing the added value.

A company manufacturing perfumes is likely to focus its EI actions towards its marketing and advertising campaigns whereas a biotechnology company is more likely to be concerned with research and development, technology and patent information. It may be that a pharmaceutical firm, for example, would choose to set up an EI function targeted only at technical information to build an advantage in the area that it is competing most. Such a specialised need has spawned several EI-like consultancies and public programmes serving the technology research for the healthcare market.

Generally, manufacturing companies have a need for more factual or 'hard' information such as industry reports, statistical data and financial information whilst a marketing or consultancy type of organisation will make use of 'softer' information such as market research, customer feedback, opinions, TV commercials and news articles.

5.3. AUDITING THE ORGANISATION'S INFORMATION NEEDS

EI aims to be a systematic process that transforms pieces of information into strategic knowledge, and requires a continuous and systematic intelligence process, addressing all fields of interest: competitors, markets, products, customers, technologies, etc.

To begin the process, it is important to conduct a needs assessment in order to identify the key critical factors for the organisation and to determine what types of information are really crucial for the users.

The information needs analysis can be divided into the steps below:

- a. Users' identification
- b. Company analysis
- c. Identification of key critical factors
- d. Information needs definition
- e. Information available and Information gap
- f. Needs updating.

a. Users' identification

Before starting the needs assessment, it is necessary to understand who, among decision makers and strategic planners, will use the information and, above all, in which type of information he/she is interested.

There are some questions which can help the identification of the users in the organisation:

- Does a strategic document exist in your organisation?
- How was it developed? Who is aware of it? Why?
- How is the internal decision system organised?
- Is the strategic planning activity based on information about external and internal information?
- Does a link exist between strategy and information gathering?
- How is the operational information disseminated within the whole company?

b. Company analysis

Once information users have been identified, it is vital to clearly assess the current company situation and strategy. The following list can help:

Company background

- Brief history of the company
- Main share- and stakeholders
- Key industry markets in which the company is involved
- Company visibility
- Management information flow

Company strategy

- What is its mission and vision?
- What are its main long-term objectives?
- What are its strategies?
- What is the company's focus in the past, in the present and in the future?
- What is the current operating corporate culture?
- In which new markets is the organisation planning to enter?
- How will the products develop?
- Are the values and the goals shared by all the organisation?

Answering these questions, gives a general picture of the organisation and its requirements. In order to define an EI process or to improve the current one, this phase plays a key role.

¹⁵ K.W.M. Tyson "The complete guide to competitive intelligence"

The next steps require a large number of interviews at all key levels of company staff, from the top managers to executive staff, from the decision makers to the information manager.

c. Identification of key critical factors and areas

Before starting the information collection, it is important to identify which topics are of most interest for achieving your purposes. There is an enormous amount of data available, mostly on line, but only a very small portion of it is significant. The aim is not to have a lot of data but to have the right information in order to reach the right person at the right time.

Which factors allow the firm to be competitive and to keep competitive advantage?

The following questions may help:

- What is your competitive advantage?
- What is the competitive advantage of your main competitors?
- What are the purchasing criteria of your customer?
- What are your main information needs?
- Which areas do you consider strategic?
- What is the connection between external information and internal strategy?
- Which types of information do you think decision makers need?
- How are you going to analyse the information? Why? Who will do it?

The following table can help you to define the importance of the information in different fields of interest:

Area	Importance of Information		
	High	Medium	Low
Market			
Product			
Process			
Procurement			
Competitors			
Customers			
Alliances			
Technologies			
R&D			
Regulation			
Financial sources			
Political and economical environment			
Others			

d. Information needs definition

The next step addresses information needs for each strategic area; market, product, competitors, technologies, environment, and customers. The use of interviews is normally the most productive method for the identification of needs.

An interview questionnaire, with open questions, can be customised for each field and for each interviewee. The next table provides a basis for preparing your questionnaire:

INFORMATION NEEDS QUESTIONNAIRE

Market

- Main market segments served
- Market position and share
- Market entry and marketing strategies
- Target of each segments
- Delivery channels
- Main suppliers
- Supply chain used
-

Product

- Product line (current, foreseen)
- Product development
- Sales information
- Substitute product
-

Competitors

- Main competitors
- How do the competitors compete?
- Which is the main advantage of the competitors?
- In which kind of news are you interested? (price/technologies/market strategies, product, patent)
-

Technologies

- Main current technologies
- New and emerging technologies
- Technologies used by competitors
- Patenting situation
-

Environment

- Legislation
- National and International Policy
- National and International Economy
- Financial opportunities/constraints
-

Customer

- Customer desires / needs
- Customer profile
- Customer habits
-

Once the information needs are defined, it is time to take stock of information already available within the organisation.

e. Information available and information gap

For each of the identified areas, the current availability of information should be checked, according to the following:

- How accurate is the management's knowledge on the technical and economic issues of interest for the firm?
- Are the information priorities well defined?
- Which information is already available? Who gathers it – and how?
- When is it gathered? How is it stored? Where? Who can use it?
- How does the information flow?
- What is the management involvement in information?
- Are the staff aware and motivated to report about information issues?

Now you have a picture of the company in terms of the strategic planning, the information needs and the information available. This provides the basis for where to operate and what to improve.

This exercise will provide an idea of the information gap that exists between what is needed and what is available. Are the management and staff happy with the current information system? Are the staff happy about the current information quality? Is the situation helping to achieve the company's strategic goals?

The identified information needs should be formalised in order to build an organised EI process.

f. Needs up-dating

The EI process is a continuous and changing stream of information which reflects changes in the operating environment. It is necessary to keep updating information needs in order to build a dynamic EI system.

When strategy and organisation change, the EI process needs to be assessed and changed with it. The strategy too must be up-dated according to the new information being received (new opportunities or threats, new needs and so on). Therefore, EI is both an interactive and iterative process allowing fast and efficient changes.

There is no precise definition as to when the needs should be updated. It will normally depend on the moment when change, either internal or external, has taken place, challenging your information support structures for decision-making.

BOX 3

ESSENTIAL TOOLS FOR SURVIVING IN THE MARKET

ICUBE s.r.l. (www.icube.it) is an open source software design and development firm from Pisa- Italy

Beginning with the consideration that information is essential for the competitiveness of companies, some sectors, such as Information technology, require much more continuous updating respect to others, for example, textile or mechanical.

ICUBE, a young Italian spin off company operating in the area of open source software, has devoted particular attention to management of information and knowledge, since the beginning of its activities, by adopting specific procedures and implementing advanced tools.

The management team, composed of Paolo and Marco Bizzarri, regularly monitors both technology trends and market demand.

Due to the small size of the company, all staff members are involved in information collection activities based on priorities defined by management and also on personal competencies and skills.

During kick-off meetings for new projects, the information needs are identified and documents already available within the company are verified.

ICUBE draws information from different sources that thanks to an intranet recently developed is made accessible to all employees.

Seventy per cent of the collected information comes from selected web sites.

Internet is considered a reliable source for two main reasons:

- 1) Information can be verified in different internet web sites.
- 2) A complete list of most consulted URLs has been compiled and it is regularly updated.
- 3) ICUBE management provides new employees with a short training course about where it is possible to find data for every day activities;
- 4) A second reason resides in the type of information searched.

Wrong, imprecise or false data, related to IT sector, are quickly rejected and therefore internet offers the advantages of an affordable and, at the same time, trustworthy source. In addition newsgroups, mailing lists and chat are efficient tools to get in contact with experts and consultants.

ICUBE plays an active part in this new kind of discussion forum, collecting important and strategic reports on state-of-the-art technology, products and services of competitors and market trends.

Therefore even though the company does not consult external experts it is capable of foreseeing actual and future scenarios.

The weak point is that data is not elaborated in a formal survey but it is analysed during the weekly meetings held to focus on the development of each project.

Internal meetings are a chance to attend to staff information needs and plan activities to share common knowledge.

External seminars are a means used to transfer external information within the company.

Among the different topics, reports on exhibitions and events are extremely important for:

- 1) Benchmarking with competitors
- 2) Understanding technology trends
- 3) Learning new marketing strategies from companies with the same targets and products.

On one hand because the sector is very dynamic, books, magazines and literature are not considered essential even though collected and archived.

On the other hand, contacts with suppliers, clients and research centres are judged worthwhile for competitiveness.

In line with this policy, ICUBE management is one of the most active members of the Linux Association in Pisa and Italy, it maintains good contacts with the regional branch of Italian Association of SMEs (API) and with the local Innovation Relay Centre. Despite the fact that it is a young company, ICUBE is devoting both human and economic resources to create an intranet thereby demonstrating how much importance is given to information and its management for the survival of this company in the IT market.

6. Searching for information

This chapter describes key information sources. It provides useful background on new web techniques and tools and offers a brief round-up of search engines and software. We give some advice on internet usage and explore the use of traditional information sources, such as books, technical literature, surveys, conferences and other events. We briefly examine how personal contacts can be used in an EI context.

6.1. SEARCHING INFORMATION ON THE WEB AND ELECTRONIC BASES

"The good news is that everything is on the internet. The bad news is that everything is on the internet" (*R. Wachbroit, University of Maryland*)

The internet has become an additional source of information, a cost-effective means for information collection and a method for its dissemination to decision makers. Undeniably, information passing through the web is becoming the principal source for intelligence gathering. There are specialists (sometimes referred to as watch specialists since these information professionals can watch out for new developments in particular industries such as technology, market trends, etc). Public information is basic for professionals especially considering ninety-five percent of value-added information is not within easy reach. Users find a large amount of often "free, but priceless" information about competitors, markets or technologies on the Internet, frequently provided by the competitors themselves. Professional sites, public and private databanks, discussion groups, recruitment sites give the impression that the sources are endless on the Net for information / watch specialists. But quantity does not guarantee quality.

Although there may be concerns about the reliability and timeliness of information published on the internet, there is little doubt that the growing number of services and databases found on the internet represents one of the most cost-effective sources of information. But the search can be like looking for a needle in a haystack. What is at stake is the ability to extract useful information and facts from the clutter that makes no sense.

THE FIGURES OF THE WORLDWIDE WEB (JULY 2002)

-
- Web size: >> 1.000.000.000 documents.
 - Low level of indexation of documents.
 - Absence of regulation.
 - Security (payments) and fraud (copy, modification, etc.) problems
 - Invisible internet: Most of the resources and databases in the web (75-80%) are not indexed nor accessible through the conventional search engines.
-

6.1.1. WEB TECHNIQUES AND TOOLS

The easiest way to search information on the web is through search engines and directories. This section provides a brief description of what directories and search engines are and what other tools are available for searching information in the complicated maze of the net.

What is a search engine and how is it compiled?

- A search engine is a database of web pages which have been automatically assembled by software known as robots or spiders.
- These robots/spiders crawl the web moving from link to link identifying pages. The pages are indexed and added to the search engine's database. It is also possible for webmasters (individuals or companies who design web sites) to submit their sites for crawling and consequent inclusion in the database. This is known as search engine optimisation and web designers and the search engine owners charge companies and web site owners a fee to move up the list of results obtained from searches made on search engines such as google or yahoo.

Do search engines search the entire web?

- Search engines do not search every page published on the web, instead they conduct a search of their own databases which were created at an earlier date.
- This happens because search engines only index the pages that they can find and that match their criteria. For example, the search engine may not be able to crawl a particular format or cannot access subscription-based databases.

How current is the information found by search engines?

- Robots/spiders regularly check indexed pages to see if the content has changed and then update their index where necessary. The time taken to update pages varies depending on how often each search engine sends its robots out to crawl the web and how long they take to add new information to the index.

How is the information presented?

- The information found by search engines is ranked according to each engine's search criteria. For example, the frequency of the keywords or phrase used in the query. The location of these words is also important – whether they appear in the title, header or text of a page and also if they appear in the 'meta tags'. Also, the number of links to a page can be taken into account – more links meaning higher ranking (e.g. Google).

What is a directory – is it the same as a search engine?

- Subject directories are created and maintained by human editors rather than software. However, this distinction can become blurred as most directory sites now have the ability to search the web. For example, Yahoo is a directory site but if you don't find the information you wish on Yahoo you are directed to search the web using the Google search engine.

Are search engines and directories the only tools available for searching the web?

- No – there are a number of options for locating information on the web. These include searchable internet newsletters and discussion groups and also subject gateways and downloadable software devices.

The table below contains information and links regarding different tools which can be used for searching the internet. This is merely a brief round-up of the available tools and is not meant to be a comprehensive list of all available search engines or software tools.

Free Text Search Engines

Can enter search terms by keywords, e.g. exporting, "knowledge management". Results are returned listing some or all of the keywords (depending on how the search term was constructed). Some search engines allow Boolean operators (AND,OR,NOT).

AltaVista www.altavista.com

Also access to a web directory, search centres, images and MP3 / audio search.

Google www.google.com

Very open, uncluttered search screen. Can also search for images or browse the google directory.

Meta Search Engines

Unlike standard search engines, meta search engines don't crawl the web themselves to build listings. Instead, they allow searches to be sent to several search engines all at once. The results are then blended together onto one page.

IxQuick www.ixquick.com

IxQuick works by simultaneously querying 10 major search engines in order to produce an answer to a query. The correct syntax for each search engine is automatically used. Results are then presented to the user by relevance and source.

Vivisimo <http://vivisimo.com/>

Queries search engines and also organises the results into categories. E.g. a search for Trade Partners UK produced results under such headings as industry, British embassy, missions, opportunities – export.

Meta Sites / Gateways

They are all distinguished by the fact that the subjects will be categorised and that all links will be subject to validation (most sites apply set criteria) and will often be annotated. Such meta sites can provide a quick way of identifying quality resources.

Enhanced and Evaluated Virtual Library (EEVL) <http://www.eevl.ac.uk/>

The Internet Guide to Engineering, Mathematics and Computing. Resources include e-journals, training materials, research projects, professional societies and University departments. To ensure currency and quality of the information sources are selected and subject-indexed by experts.

TelecomsVirtualLibrary <http://www.analysis.com/default.asp?mode=article&iLeftArticle=288>

Analysis maintains the Telecoms Virtual Library which is a collection of links to other telecoms sites worldwide and is also part of the World Wide Web Consortium. Can browse by subject to find e.g. e-journals, policy and industry information and research institutes and programmes.

News Groups / Mail Lists / Newsletters

Source of information from peers and subject experts.

Liszt <http://www.liszt.com/>

Browsable list of newsletters and discussions.

Freepint www.freepint.com

A free email newsletter containing website reviews and tips on internet searching.

Alerts

Service to alert you to changes to flagged website(s).

Please see <http://www.fuld.com/i3/l2.html> for further monitoring services.

NorthernLight http://standard.northernlight.com/cgi-bin/cl_cliplist.pl

Receive e-mail alerts which notify you when there are new Web pages or Special Collection documents covering the topics of your choice.

<http://www.kartoo.com/>

Kartoo proposes a solution of technology watch and business intelligence with a very visual approach of information visualization. A user can supervise the updating of a page, observe the evolution of competitor sites, watch for the arrival of new entries for a defined topic on the search engines...

Intelligent Agents

Intelligent Agents are software tools that automatically do certain jobs on the internet. e.g. can send your search questions to a number of search engines simultaneously and rank the results. The agent resides on your computer or on the web and when required will move around the internet on it's own picking up information. Some agents also then analyse the information they retrieve. There are a variety of agents, both free and pay to download. These include search agents (general / metasearch), web agents (filtering / profiling), monitoring agents (alerting / updating) and virtual assistants.

Strategic Finder 2.2

Strategic Finder queries over 4000 databases at the same time. It is designed to enable you to use the Internet for competitive intelligence, monitoring the launches of replacement products, the appearance of new competitors or standards. For further information regarding Strategic Finder 2.2 and details www.strategicfinder.com

Invisible Web

The Invisible Web is made up of information that spiders do not index (e.g. they cannot trawl a particular format or access subscription-based databases). Many of these databases contain high-quality information, however, in order to search them you must visit the web site that provides an interface to the database. The search tools on the site will be specifically designed for that particular database and therefore it should be easy to retrieve the required information. In order to query a particular database you need to be able to find it on the web – the gateway sites below are a useful starting point for this.

Invisible web <http://www.invisibleweb.com/>

An edited and indexed collection of databases which deal with specific areas e.g. small business, investment, politics.

The Big Hub <http://www.thebighub.com>

A directory of over 1,500 subject specific searchable databases

Weblog / Blog

A weblog / blog is a web page containing brief, chronologically arranged items of information e.g. frequently updated observations, news and recommended links. Frequently aimed at a particular sector, profession or interest group (e.g. the bluetooth weblog <http://bluetooth.weblogs.com/> covers the bluetooth wireless world). They can also be highly personal comments on an issue or for instance a diary of an expedition, or a virtual lab notebook e.g. for patents.

The Virtual Acquisition Shelf and Newsdesk <http://resourceshelf.blogspot.com/>

Resources and news for information professionals.

Digital Identity <http://weblog.digital-identity.info/>

Very specific weblog on internet standards.

Semantic Web

www.semanticweb.org

A smart network being developed collaboratively aimed to understand the meaning of words and concepts and also the logical relationships between them. Semantic-enabled search agents will be able to collect machine-readable data from diverse sources, process it and infer new facts. Programs that weren't made to be compatible with each other will share previously unmixable data.

6.1.2. INTERNET – DRIVING WITH A ROADMAP

In short, it is imperative to sift and validate information and to constantly make decisions about its reliability. Evaluating sources is an important skill: it is essential to know where to look and what information you are prepared to accept as valid for your needs. Companies can often be overwhelmed with too much information or too little, and the temptation is to accept whatever is found.

There are some other general indications that should be kept in mind when using the internet for EI searches:

- Keep focused. The amount of data and information accessible online makes it more important than ever to be very precise about what is being searched for in order to attain precisely what type of information will allow the objectives to be met. Concentrating objectives into a single specific question will help to make needs and requirements clear, ensuring a focus on targets while surfing online. The same is true for the use of commercial electronic databases.
- Knowing the types of search tools available and mastering some general search tips can make the research more profitable.
- Use caution when searching the web. Anybody with access to the internet can post web sites about topics that interest them. These sites are not always accurate; therefore, it also is a good idea to learn how to evaluate the Net.
- Consider the credibility of the site being visited. There are many “spoof” sites online, therefore it is essential to take a close look at the accuracy of information.
- How reliable is the source? Check the reliability of the market study, white papers or other information on the web.
- Use various search engines and databases because not all are equal and efficient. Try to understand how to use them but don't get stuck on one or two (simply because you find them 'comfortable' to use).
- If searches are being conducted in several languages and translation of the information is required, it is useful to begin with search engines (like Altavista or Google) offering translation tools.

6.1.3. OTHER ELECTRONIC SOURCES

Other sources of information that can be useful for SMEs are the discussion forum, the mailing list and the database.

In this dynamic dimension of the Web, discussion forums on themes that are relevant to current problems, may be useful. Also, questions can be asked directly knowing that there is likely to be an expert in the area or an individual who has probably already encountered the same difficulty. If the responses, however, are not satisfactory, try direct contact – via electronic mail – with the people who have responded (in this case, an electronic address can be created to remain relatively anonymous though it is also judicious to edit messages because « false » addresses do not grant sufficient recognition for the request).

Whatever the case, the lifetime of discussions on forums is rather limited; as for information exchanges, they tend to be fragmented and unstructured (unless you stumble on a forum dedicated exclusively to your concerns it might be quicker to create your own).

Mailing list services allow more people to exchange information and to collect documents through e-mail programmes. A specific program (such as Listserv, Majordomo, Almanac, etc) located in a server linked to the net manages a list of e-mail addresses and forwards messages to all the members of the mailing list in order to facilitate a discussion among more people.

Databases contain information and data in electronic form. As there are a great number of databases available, it is important that you select a database which is suitable for your topic of interest. For example, databases on patents usually provide information on:

- Bibliographic data
- State of the art description (Background)
- Problem description
- Solution description
- Graphics or schemes
- Legal contents

Other databases provide information on bibliographic references (database format), market studies and benchmarking, legal issues and regulations etc.

6.2. THE USE OF TRADITIONAL SOURCES

6.2.1. BOOKS, MAGAZINES AND TECHNICAL LITERATURE

Companies consider books, magazines and specific literature, as secondary sources, to be not only reliable but also affordable. However, in order to be used, this information needs to be read, stored and spread among the different departments or users across the company. This very often leads to an insurmountable barrier (often as a result of lack of time) which hinders small organisations from taking full advantage of these resources.

In practice, SMEs which receive a supply of different newspapers, technical magazines and books, find that their employees often confess to ignoring or being unaware of literary resources, preferring the internet for finding specific information.

For this reason, a knowledge platform should be established using selected magazines based on the companies' real needs and/or strategies.

Here is an example of how they could be selected : A small company which produces guitars, distributed by mail order, receives several magazines periodically. Two of them are interesting to the Human Resources manager: the first concerns distribution channels, the second looks at the Internet and electronic commerce.

At first glance, the first one seems to be more suitable for the business of the company because it is focused on new sales channels while the other one, dealing with new technologies, appears to be quite far from its daily activity and therefore less pertinent. Despite this fact, the manager chooses the second one because he believes that the sales strategy of the company is to reinforce the mail order services, rather than explore new channels, and it is useful to perform an in-depth study of the problems connected with the Internet.

Newspapers, magazines and books are an interesting and important source of information but in some cases they are not easily manageable. Specialised human resources and time are necessary to select useful articles and data. Each department must be involved in this task of selecting the topics of most interest to them. Moreover, a precise information system is required to create a platform of knowledge accessible to the entire organisation.

Sophisticated search engines available for on-line newspapers, together with an initial selection of interesting magazines can help but, because this needs continuous maintenance, it is essential that strategic trends are taken into account.

Even though this type of source is easily affordable (the price of publications), it is quite difficult to define the cost implied in terms of human resources and time necessary to manage this information.

6.2.2. MARKET ANALYSIS AND TECHNOLOGY SURVEYS

An initial, careful analysis to determine what products and services are demanded by consumers is crucial both for small scale business and the corporate sector. For this purpose, market analysis and technological surveys are useful in understanding trends.

Furthermore, consulting the most important reports, usually written by well known experts and consultants, is a real advantage if the company needs to decide on new products and/or service diversification strategies, due to the presence of many competitors in the same market.

Unfortunately, the price of the reports is often beyond the budget of many SMEs and thus the access of many companies who could benefit from the information. Less detailed descriptions are available on the internet but their reliability must be verified through other sources.

The European Commission provides regular publications of interest on different subjects. Studies and research are usually carried out by teams of experts. Although this type of publication is usually free of charge, the European Commission invests a large amount of financial resources in order to offer broad overviews on European issues. In some cases, however, they are not targeted to a specific "audience" and this generalisation reduces their importance as an information source.

6.2.3. EVENTS: TRADE FAIRS, CONFERENCES...

Events are interesting places to collect information on new marketing strategies, technological trends and competitors' products and services. The term "event" is quite general and is interpreted here as an activity that is external to a company's everyday work.

In order to judge the advantages of an event, companies need to decide what real value they will achieve by participating.

Over the last few years, the number of exhibitions and trade fairs specifically addressed to SMEs has been growing considerably and different topics connected with resource management (from Information Technologies to Marketing tools) are constantly being explored and dealt with. For this reason their importance, as a means of collecting strategic information, is increasing and they are becoming more and more essential while, at the same time, so is the increasing complexity of the topics with which they deal.

The number and the variety of subjects may seem to be a strength of the exhibition but, simultaneously, these characteristics can result in a downside when a company is forced to choose the most interesting ones to visit.

From a financial point of view, attendance at exhibitions and trade fairs is expensive but they offer a key opportunity for contact and acquisition of new clients and for the collection of information on competitors.

Apart from the opportunity to access information on new technologies for business efficiency, exhibitions offer the chance to:

- make contacts with clients and suppliers to improve the quality of products and to understand market needs;
- monitor "old" competitors' activities and discover "new" players to evaluate their ability
- understand innovative marketing strategies implemented by companies with the same targets and/or products.

On the other hand, a poor choice of events can turn out to be a waste of time, human and financial resources and can bring the threat of disclosing information on the company's technological and marketing strategies to competitors.

Conferences and seminars are, probably, the most useful means to collect information on specific topics and for meeting experts. They do not present any particular disadvantages. In fact, considering all the traditional sources of information conferences, meetings and seminars are preferred because they concentrate on the specific needs of companies. They offer the opportunity to update information and data and to find out new sources to create specific knowledge.

The main benefit comes from meetings with experts from the sector and also from access to unpublished documents.

6.2.4. PERSONAL CONTACTS AND THEIR ROLE IN THE IT AGE

Innovation and the creation of added value for SMEs have always been the result of an integration of economic aspects and socio-cultural factors, favoured by personal contacts that facilitate products, business ideas, knowledge and people transfer.

Despite their size and limited financial resources, SMEs successfully face competitive pressures through the establishment of strong relationships based on a common language and a common cultural background. Where systems are characterised by strong relationships, information, knowledge and innovation spread faster, and loyalty, trust and acquaintance reduce uncertainty and opportunistic behaviour but they also increase the percentage of tacit information collected by employees.

Information coming from personal contacts contribute, when suitably processed, to the diffusion of knowledge from outside and within organisations. Where knowledge is tacit and informal, it can be shared. From this perspective, competition stimulates the continuous search for knowledge that is transferred as added value to the entire economic system.

The following list might help promote understanding of the type of information that can be obtained from personal contacts:

Customers: constitute a reliable source of information because they perform a constant selection of products and services and can provide a benchmark analysis on the competitors' state-of-the-art. In addition, their demands reflects the market trend, they are therefore an important observatory for the company's competitiveness.

Suppliers: as in the case of customers, the information derived from suppliers is a useful support in the decision-making process. Suppliers provide information on competitors, on the sector and on the technologies developing in a particular sector. In the production chain, innovation implemented by suppliers can have a positive effect on the whole organisation and its future development.

Consultants: Professionals are a key point for a successful approach to the global world of information. Due to their expertise and skills, they provide insights on subjects of strategic interest for the company. They are, however, in many cases too expensive for SMEs.

Non Profit Organizations; Chambers of Commerce, Business Associations, Patent Offices and so on, are essential because they provide information on legal and technical aspects, new financial opportunities, partnerships, etc.

Their services are offered for low registration costs or, in some cases, free of charge and, although based on general and standardised information, can provide an "initial point of departure" for further analysis and contact. Furthermore, the publications they produce can be an excellent source of information on industrial developments and trends.

Public Administration: Supplier of information on regulations, public contracts, as well as a supporter of innovation through promotional and awareness programmes. Permanent links to selected departments of the different levels of administration (European, national, regional or local) is a must for any kind of organisation.

The process of creating and maintaining personal relationships consumes time and energy. It requires effort both for its implementation and for its maintenance and management. Furthermore, global competitiveness forces SMEs to re-think their strategies and consider the advantages coming from links made possible by more accessible and efficient Information Technologies.

Nonaka and Takeuchi¹⁶ state that the mechanism of creation of knowledge consists of a "mobilisation and conversion of tacit knowledge, i.e. the organisational ability to manage individual knowledge to exploit it, to create explicit knowledge to allow a knowledge creation "spiral" to take place...."

In fact, the main disadvantage connected to personal contacts is that if not formalised, information collected as a result can be completely useless. "Tacit knowledge" is characterised by the direct knowledge of events and activities: the cognitive interactions are made up of unconscious observations and social and "community" relationships. For this reason, it is difficult to express in a formal way. It is linked to the social context and it is difficult to communicate.

On the contrary, explicit knowledge is codified and expressed according to shared rules and a common language. For this reason, explicit knowledge is easily transmittable through words and algorithms; this kind of knowledge, however, represents only the tip of the iceberg of the company's total knowledge.

¹⁶ I. Nonaka, H. Takeuchi: *The knowledge-creating company*, New York: Oxford University Press, 1995

The real challenge and a strength for SMEs is, therefore, represented by the quality of available information and the possibility to access high-level specific information thanks to integration among different sources.

On the one hand, the personal contacts are essential for technical information when the context is highly specialised in a particular sector. On the other, the same context can suffer from the lack of information about different topics such as international law, marketing research, high tech, information and communication technologies. Put simply, while a focus on specific technical information is in itself a strength, too much focus on this, to the exclusion of other relevant information turns it into a weakness.

Co-operation and involvement of employees in the internal information sharing process is, therefore, essential but not sufficient for the transformation of private information into company knowledge.

Regular meetings to identify the needs and verify the information available within the company together with strategic committees meeting twice a year to highlight the strategy and confirm that the plans are being followed can be recommended, but they are not sufficient to ensure that the collected information, both formally and informally, is transferred to the whole company and above all, to the right person at the right time.

Simple procedures can support SMEs in transforming un-codified data into information available through databases or more sophisticated tools. Information Technologies assist with the maintenance of records of relationships established and support and ensure the repetition of best practice within different social and economic players.

According to recent studies¹⁷ SMEs tend to use personal sources of information more than impersonal sources: the more critical the decision, the less they tend to rely on assistance and they do not consider traditional sources such as expert advice very valuable.

In conclusion, it can be said that each source of information offers advantages and disadvantages according to the importance of decisions reached. The integration of different sources of information seems to be the most effective solution for SMEs both from an affordability and quantitative point of view. Therefore, the complementary use of electronic and traditional sources with informal contacts within personal networks, should not to be forgotten in the selection of the sources in any EI process.

¹⁷ Bruschi, G.C. (1992) *Marketplace information scanning activities of new manufacturing ventures*, *Journal of Small Business Management*, 6, 4, pp. 41-53;
Specht, P.H. (1987), *Informations sources used for strategic planning decisions in small firms*. *American Journal of Small Business*, 11, 4, pp.21-33.

BOX 4

A FIRM TAKING RELEVANT ADVANTAGE OF THE INTERNET

A U. K. Biotechnology firm employing 18 research scientists (includes 5 Project Managers), addressing overseas market (50% America).

Information collection: The company has the following functional areas with needs defined: Library of relevant research references, Library of bacterial strains, Library of competitive patents – in development, Product development, Drugs research – technical information, Health and Safety

Competitive Activity The internet was used on a regular basis within this company by the Chief Executive to track competitive activity. Searches could be undertaken by name from prior knowledge of a competitor or by subject eg. drugs research to identify new competitors.

Patents The company was developing a patents database/competitor information for new product development. The internet was used on a daily basis to track patents and was the main area for input to the new database. The regularity of patent searches was very often informal, procedural rather than specified, although the company recognised that the development of a database would require a more systematic approach

Overseas Markets The internet was also used to keep a track on overseas markets etc. A lot of the company's orders were from America. Although the company does not have a website address it is in a fairly niche market and is known by 'word of mouth' even overseas. The company used the internet to obtain information about seminars and events in the USA where they could showcase their products.

Publications Other avenues they used a great deal were journals, scientific publications and news feeds – some of which were also online.

The Internet is said to be a 'Library' of information – providing immediate up to date information on patents, saving travel time and money with access to overseas markets like America – email is also useful here. Make good use of the search engine, note down frequently used websites to save time, almost every business has a website – check out your competitors – new products are often advertised on the web, make lists of areas that the business requires more information about and see what you can find on the net - allow time to surf.

7. The analysis of information

This chapter provides guidance on the analysis of information, demonstrating how value is obtained from it, underpinning this with the Chain Of Value concept. We introduce the use of Porters five Forces model, SWOT analysis, competitor profiling, patent analysis, benchmarking and scientometry. We emphasise that in the end it is human beings who create intelligence.

7.1. METHODOLOGIES FOR THE ANALYSIS OF INFORMATION

The objective of the analysis stage in an EI process is to provide relevant information to decision-makers.

To do this, the analysis has to be focused on providing the final user(s) of the intelligence with a product that answers their specific information need. Above all, decision-makers need to have focused analysis, arguments, recommendations, and so on, presented to them rather than a large volume of information which has not been analysed.

Making information valuable is the main purpose of the analysis process. The organised and methodical EI approach to gathering & treating information includes checking and validation and this is the added value for the decision-maker. In this respect, analysis is the most important step in the EI process.

However, the analysis is also the most difficult step. In general, organisations only spend a small percentage of time on analysis, sometimes because they are unsure of how to do it. In general terms, the information analysis process has two main steps:

1. The validation of the information
2. Using the information to produce knowledge.

Validation

This initial treatment of the information should validate the data in terms of its relevance and veracity. The data is pertinent if it matches the information needs and valuable if it is authenticated.

In some cases, the validation of raw information might leave room for some doubt. In such cases, it is necessary for users to be aware of the risks associated with any decisions based on the information. Taking decisions on the basis of wrong information can be dangerous, especially if decisions are strategic. Validation must therefore be performed in a systematic way. We believe that best practices in the validation of the information are:

- Identifying the original source of the information and checking its credibility
- Checking the procedure used to obtain statistical data
- Looking for different sources for the same information, checking if the original sources are different
- If different data is found for the same topic (for example, different figures for sales or market share), it is important to remember that the genuine data is not necessarily the material which is quoted most
- Checking the information with external experts

Getting Value out of Information

Once the quality of information has been assessed, analysis methods guarantee its value for exploitation¹⁸. The objective of the analysis is to transform the volume of collected raw information into material with high added value, as is shown in Fig. 7.1.

¹⁸ F. Palop and J.M. Vicente, *Vigilancia Tecnológica e Inteligencia Competitiva*. Estudios Cotec nº 15. February, 1999.

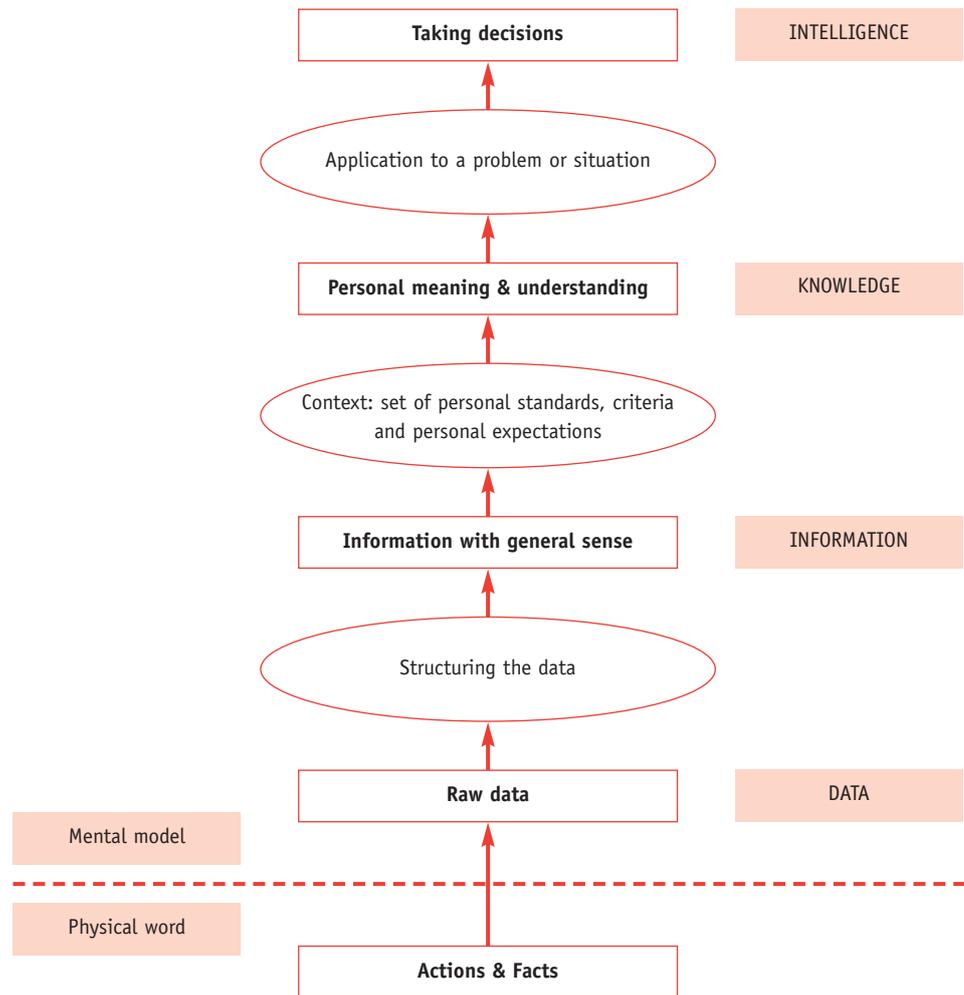


FIGURE 7.1. INFORMATION BECOMES INTELLIGENCE WHEN IT IS USED¹⁹

In EI process, there is a well established flow from raw data, to the highest level of information quality. This process starts with the data sourced in the 'real world'. The information is analysed in the context of the personal standards, criteria and expectations of the decision-maker to become knowledge. Finally, the decision-maker applies this knowledge to a particular situation to create intelligence.

If this process is used in a company, the data arrives via many sources and it will only be used when it is contextualised within the company and matches the profile of the interests of the decision-maker.

It might be useful to create a "model interests profile", a description of the information needs of the decision-maker. The needs have to be thoroughly understood by the person in charge of the EI process. And the whole EI process must take account of the personality of the decision-maker (style, habits, interests, information culture...).

The process of creating valuable information within a company can be represented via the Chain of Value²⁰ This illustrates the increasing degree of the "elaboration" of the information, and shows the collaboration of the experts, Fig. 7.2.

¹⁹ *Understanding information*. P.A. Consulting. The IT Management Programme. Report Synopsis P.A. Internal report. London, 1994.

²⁰ Degoul, P : *Le pouvoir de l'information avancée face au regne de la complexité*. Annales de Mines, April, 1992.

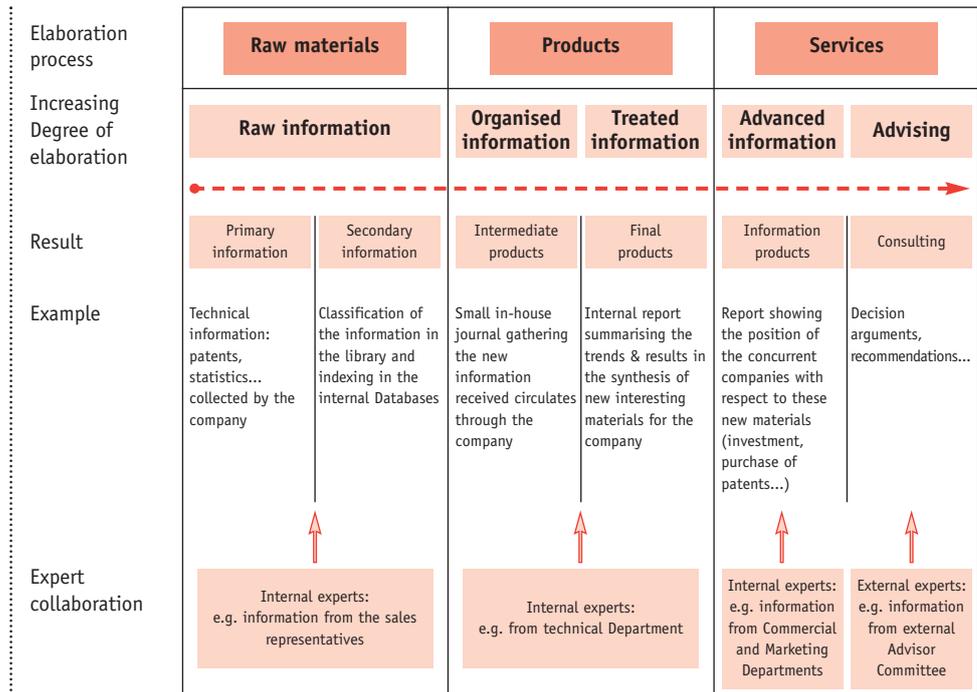


FIGURE 7.2. CHAIN OF VALUE FOR INFORMATION

Initially, raw information comes from different formal and informal sources. In this first step, this primary information needs to be organised, indexed and stored. The opinion of the experts may add some value at this stage.

The second step is the treatment of raw information to produce an intermediate product or final product depending on the required degree of quality. A final product might, for example, incorporate expert opinions, both internal or external.

The third step adds most value. This is the core of EI. This step creates information products in line with the needs of the decision-maker. It creates advanced information - knowledge, and it is at this point of the analysis process that the contribution of experts has the highest added value. The final information product brings together all the elements required for making decisions, including recommendations and new proposals.

7.2. ANALYSIS TOOLS

There are numerous potentially useful analysis tools for getting value out of information in the fields of competition, markets and technology. Moreover, some of them can be used for more than one type of analysis.

Different levels of analysis can be conducted depending on the nature of a company's competitive objectives: a market analysis, an industry analysis or a company analysis (of the subject, company or a competitor)²¹. Some of the techniques available include Porter's five forces model, SWOT analysis, competitor profiling, patent analysis and benchmarking techniques²².

For those dealing with technical information Scientometry tools can be interesting. These techniques exploit statistical scientific and technological information contained in databases, including patents²³. Others tools include the technological attractiveness-technological position matrix, the technology-product matrix, core competences and those related to prediction such as Foresight, methods based on extrapolation of past trends, S-curves, Delphi methods.

²¹ M. Cook and C. Cook. *Competitive Intelligence*. Kogan Page, 2000.

²² L. Kahaner. / *Competitive Intelligence* Touchstone Ed., USA, 1997

²³ P. Escorsa and R. Maspons : *De la Vigilancia Tecnológica a la Inteligencia Competitiva*. Prentice Hall. Pearson Educación S.A., Madrid, 2001.

Some of these are considered below. Companies need to decide which, if any, tools meet strategic information needs. However, it is important to note that these analysis tools have no value in themselves unless they are part of a planned and focused EI process. The models created with these tools are only valuable if they help a company make better decisions. Human intervention is still required to analyse and create value out of information and then make the decision.

7.2.1. THE PORTER'S FIVE FORCES MODEL

The business manager looking to develop a competitive advantage over rival firms can use this model, created by Professor Michael Porter of the Harvard Business School, to better understand the industry context in which the firm operates.

The model identifies five forces that act on players in a competitive environment and which determine an industry's attractiveness. The relationships among these competitive forces are shown in Fig. 7.3.

In Porter's model, each of the five competitive forces is influenced by some of the industry characteristics, as can be seen in Fig. 7.4 - the Supplier's force. By analysing an industrial sector, the five forces can be quantified and provide a good understanding of the industry in which the company is operating. It is argued that recognising which is the most powerful force (competitors, suppliers, clients,...) is the best way to position an organisation for success.

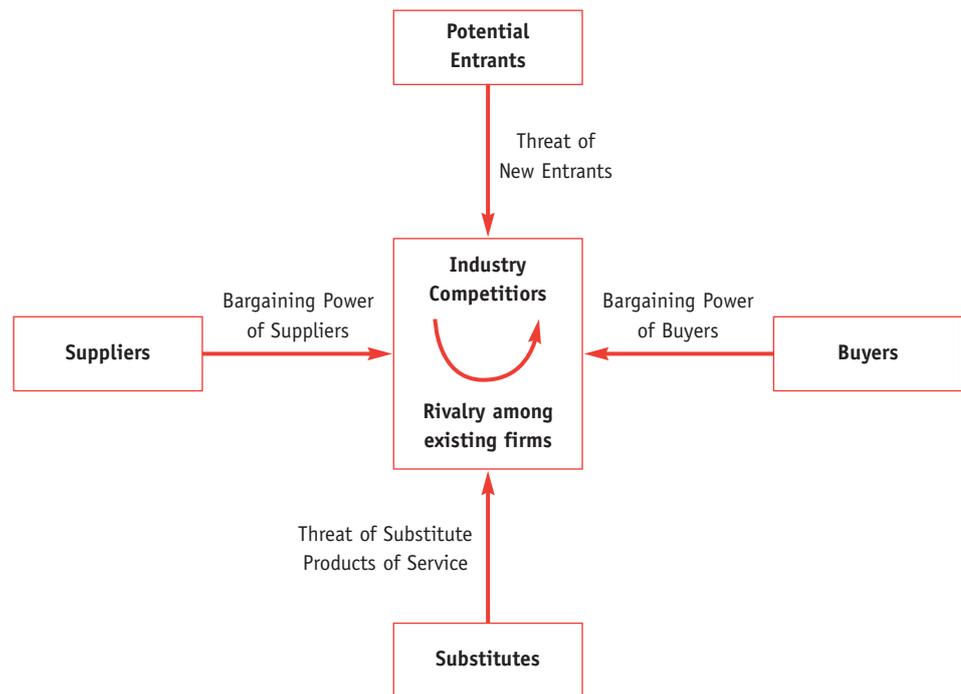


FIGURE 7.3. DIAGRAM OF PORTER'S FIVE FORCES

Supplier power

A industry requires raw materials to manufacture its product. This requirement leads to buyer-supplier relationships between the industry and the firms that provide it these raw materials. Suppliers, if powerful, can exert an influence on the producing industry, such as selling its raw materials at a high price decreasing the industry profit.

The Porter model define the following parameters to characterise the power of supplier in a industry:

1. Supplier concentration
2. Importance of volume to supplier
3. Differentiation of inputs
4. Impact of inputs on cost or differentiation
5. Switching costs of firms in the industry
6. Presence of substitute inputs
7. Threat of forward integration
8. Cost relative to total purchases in industry

Suppliers are Powerful if:	Example
Credible forward integration threat by suppliers	A manufacturer of laboratory supplies acquired a distributor
Suppliers concentrated	Drug industry's relationship to hospitals
Significant cost to switch suppliers	Microsoft's relationship with PC manufacturers
Suppliers are Weak if:	Example
Many competitive suppliers - product is standardised	Tire industry relationship to automobile manufacturers
Credible backward integration threat by purchasers	Milk producers relationship to dairy companies
Concentrated purchasers	Garment industry relationship to major department stores
Customers Weak	Travel agents' relationship to airlines

FIGURE 7.4. SUPPLIER POWER IN THE PORTER'S FIVE FORCES MODEL

7.2.2. THE SWOT ANALYSIS

SWOT stands for Strengths, weaknesses, Opportunities and Threats, and can be used to analyse an industry, a competitor or a firm. The opportunities and threats can be analysed at the market or industry level, taking account of the favourable and unfavourable conditions that can impact on the organisation's ability to compete. The strengths are the powerful attributes that an organisation may possess such as management expertise and the weaknesses might be something like outdated technology.

An example of a SWOT matrix is provided in Fig. 7.5. This analysis tool can help determine the strategy of the company, some examples include :

- S-O strategies: using internal strengths to take advantage of external opportunities
- S-T strategies: using internal strengths to avoid or reduce the impact of external threats
- W-O strategies: improving internal weaknesses and taking advantage of external opportunities
- W-T strategies: defensive tactics that reduce internal weaknesses and/or avoid environmental threats. A firm faced with external threats and internal weaknesses is, of course, in a precarious position.

If the strengths, weaknesses, opportunities and threats are identified it is possible to determine the priority of the actions needed to improve the competitiveness of the company.

INTERNAL FACTORS	Strengths (S) 1. Financial position 2. Management expertise	Weaknesses (W) 1. Outdated technology 2. Lack of customer loyalty
EXTERNAL FACTORS		
Opportunities (O) A. New start up with innovative technology but lacks capital	<u>SO implications</u> 1-A. Merger offer or partnership to improve the competitive advantage (and remove a competitor)	<u>WO implications</u> 1-A. Update technology
Threats (T) A. Possible regulatory change B. Decreasing population	<u>ST implications</u> 1-A- Put resources into the new situation 2-b. Pay attention to diversifying the market	<u>WT implications</u> 1-A. High investment needed 2-B. Must maintain market share

FIGURE 7.5. SWOT MATRIX OF A COMPANY

7.2.3. COMPETITOR PROFILING

Competitor profiling is one way to determine a company's main competitor and one of the analysis techniques used to determine a company's standing within an industry. Some suggestions of useful issues to examine are included in Fig. 7.6.

COMPANY PROFILE TEMPLATE
Company background: Contact details, History (i.e. founding date, number of employees), company structure, key shareholders, key industries sectors the company is involved in, etc.
Management: relevant background of key corporate executives and advisers
Company Strategy: corporate culture, new products developments, new markets, mergers and/or alliances, ...
Financial information: profitability, capital, revenues, fixed and variable costs, R & D expenditures,...
Operational information: facilities information, technology used in operations...
Marketing information: market share, marketing and advertising strategies, market segments addressed, ...
Sales information: sales force, key sales channel, major customer/clients...
Product information: product lines (major and minor), sales information by key product lines, suppliers of raw materials, parts, labour, ...
Distribution information: supply chain used, shipping methods, suppliers,...
Employee information: number of employees by functional areas, salaries, collective bargaining agreements, subcontracting, ...
R & D /Engineering: lines of R & D, R & D budget, qualifications of the staff...
Image: perception of the company by media or customers (negative-positive), name recognition, trademark recognition...

FIGURE 7.6. COMPANY PROFILE

7.2.4. PATENT ANALYSIS

Patents provide a great amount of information in both technical and commercial fields. In fact, they give information about companies and their products not available elsewhere. Searching for information contained in patents should be done by using databases as this is the only way to go through the mass of available information quickly enough.

Some indicators used in patent analysis are shown in Fig. 7.7. Although some of these analyses can be done easily for the majority of companies, others require special methods and software tools. We have already mentioned Scientometry.

What to Search for....	What it tells you...
Statistical analysis of patent activity (No. of patents) in a set field	Innovative activity at international, national or industry level (in a set field)
Company patent activity in a field	The industry leader in this field
Patent activity of company A	Innovative activity/Technical profile of company A
Countries in which company A is patenting	Strategic markets for company A
Patents from company A which are cited in others patents	Company A owns leading-edge technology
Companies citing the patents from company A	Who the competitors of company A are
Company A citing its own patents	The company is making significant effort in this area
Company A citing its own patents	Strategy of company A: Pioneer
Company B citing patents from company A	Strategy of company B: Imitator
Evolution of patent activity (no. of patents) & Company concentration (no. of companies patenting)	Life cycle of a technology: emerging, growing, maturing, obsolescent
Authoring (individuals)	Identify the key inventors in cutting-edge technologies
Code of classification of a patent	Relationship in technical fields
Relationship among patents cited in a patent and the patent itself	Relationship in technical fields
Scientific publications and patents from a researcher	Relationship between the industrial and academic fields

FIGURE 7.7. USEFUL INFORMATION FROM PATENTS

7.2.5. BENCHMARKING

Benchmarking is the ongoing process to find, research and analyse best-in-class organisations, products, services or practices, with the objective of improving a company or organisation and obtaining a better competitive position in the global marketplace.

Introduced by Japanese companies, this methodology is also growing as an EI tool in USA and Europe. The effective use of benchmarking techniques allows lessons to be learnt from other peoples mistakes and/or their success in order to increase the competitive advantage of a company.

7.2.6. SCIENTOMETRY

The EI process increasingly uses techniques to quantitatively treat large amounts of scientific and technical data by means of software tools. Scientometry allows quick and efficient exploitation of the masses of information coming mainly from databases of scientific & technical progress: journal articles, patents, conference proceedings, PhD dissertations, and other public documents.

Scientometry analyses information by means of selected bibliographic indicators, such as an author name, keywords contained in titles or abstracts, descriptors and identifiers and article citations. Scientometry is based on counting the number of occurrences of a keyword or group of keywords in the selected documents. It can also find the co-occurrences or joint citation of several keywords.

The analysis of these indicators reflects the developing scientific and technical activity of organisations, countries and companies. For example, it might be useful to track the increase/decrease of patents or publications over a period of time to identify emerging and developing technologies.

These techniques can also highlight any kind of correlation and relationships between selected parameters that a human being may struggle to detect. Thus, it is possible to establish the relationship between fields of activities or technologies by means of the analysis of co-words. As an example, it is possible to identify collaborations among authors or institutions in a certain research field, spot emerging technologies or learn about the different applications of a technology in several markets.

From a practical point of view, the majority of suppliers of commercial databases can undertake statistical analysis of data. There are also specific commercial software tools which can perform this kind of analysis very effectively. These tools are not currently widely known and are used principally by larger companies or Scientometry consultants.

7.3. THE SKILLS NEEDED

The analysis step in an EI process is designed to extract the knowledge needed for the company to make better decisions from the large amount of available information. Sometimes the analysis is achieved using the analysis tools described in this chapter.

However, these tools, although highly valuable, are not the key element of the process. They do not create intelligence. The key element in the analysis process is the human intervention. Only the human mind is able to supply the skills to successfully plan and perform the analysis and provide possible answers to decision-makers.

Analysis requires considerable skills: to weigh information, look for patterns, draw scenarios based on the collected information and sometimes making guesses to “fill in the blanks”. Interest in the EI process, an open and critical mind-set, analytical ability, curiosity and, preferably, some expertise in the field are all qualities required of a good analyst.

BOX 5

EXTERNAL EXPERTISE SUPPORTING THE EI PROCESS

GENETRIX is a recently-created 15 employees Biomedicine firm, active in the development of human therapies, as cellular therapy (stem cells), located in Madrid (fterron@e-genetrix.com)

Genetrix is a Spanish company of Biotechnology created in November 2000, as a spin-off from the National Centre of Biotechnology in Madrid (CNB "Centro Nacional de Biotecnología) belonging to the Spanish High Research Council. The main field of work of Genetrix is Biomedicine, particularly the development of human therapies, as cellular therapy (stem cells), nano-biotechnology, etc.. The creation of Genetrix was promoted by two Researchers of the CNB from the Immunology & Oncology Department. These Researchers were aware of the marketing potential of some results of their research lines (previously patented) and of the market opportunity to exploit these results and they started the creation of Genetrix.

Genetrix has a Scientific Advisory Committee composed by 6 people from the Academic and Industrial field of the Biotechnology, as Universities & Research Centres's Professors and relevant people from Biotechnology's companies.

This Committee of Experts is a mix between internal experts and external experts, because the two Scientific Promoters of Genetrix are members of it. The Promoters chose the rest of experts by their recognised scientific expertise in the business line of Genetrix. The external experts are linked to Genetrix by a Confidentiality Agreement and they receive fees by their work.

The Scientific Advisory Committee holds a meeting every three months to discuss the strategy of Genetrix. Works that the company is carrying out, trends of the worldly scientific Research in the field of interest of Genetrix, potential collaborations with others Research groups,... are analysed in these meetings.

So, the Experts Committee of Genetrix has a double role: they act a source of primary, very qualified information and also they validate the information provided by the Promoters based on their own scientific activity at CNB. The conclusions from these meetings will help the Managers to direct the company's activities in order to acquire the sustainable competitive advantages needed to compete in the Biotechnology market.

The scientific experience, the personal contacts, the daily contact with the most relevant information sources (congresses, fairs, scientific publications, patents,...), the knowledge of the market and of the regulations concerning the products destined to human health, the knowledge of the steps for a product to be commercialised from the lab to the consumer,... All of these characteristics allow the members of the Scientific Advisory Committee to be aware of the risks and opportunities for Genetrix.

An example of the importance of the Committee for the Genetrix's strategy could be the following. Genetrix was approached by a Research Group, which had a patented technology potentially interesting to be purchased by Genetrix. The results of the patent seem to be very promising against one particular disease but before making a decision the Advisory Committee was consulted. One of the members of the Committee had clinical experience in this specific field and the data concerning the therapies currently available for this illness and the actual incidence of the disease were validated. The advice of the Committee was not to buy the patent, because the risk of the operation would be very high for Genetrix.

8. Dissemination of information

This chapter deals with the important issue of the dissemination of information. It contrasts the way in which information flows in the traditional, vertical organisation with the much more open approach found in innovative, flat organisations. It points the way to what management must do if it wishes to embed EI, illustrating how various techniques can help. It also examines the issues surrounding the negative implications of openness by considering the management of confidentiality and the protection of ideas. Finally, it sets EI in its rightful, ethical context.

8.1. SOME PATTERNS OF DISSEMINATION

Once validated and analysed information has been created, it needs to be disseminated in the organisation: firstly, to those who are personally affected by the EI process, and then, to all those inside the company that may find the information useful or relevant to their work. The organisational structure becomes important at this stage because for information to flow it must trace the internal structure.

As a business grows in size, it may alter from a line organisation to a functional organisation, or from a product-based organisation to a service organisation. Different EI practices will need to be adopted to accommodate any new structure.

Management should bear in mind that as a company expands - taking on larger orders and more people, any EI practices adopted at an early stage will need to be improved upon and replanned in line with changes in organisational structure²⁴.

- **In a Vertical Organisation**, there is a traditional hierarchical structure. We see :
 - A vertical division of work and a low level of the distribution of decision power
 - Each person has a specific role, with their own tasks and responsibilities and their powers of decision are based on corporate rules and procedures.
 - Vertical interactions between the employee and their superiors
 - A strong emphasis on loyalty and compliance.

There is a danger in this kind of organisation, that each person has a role and a definite position so he/she is only interested in their own subject, is specialised in their task and does not feel the need to share information and knowledge. A primary problem is that often people are not motivated to share information and knowledge, because of the strong vertical structure and the use of decision-making power.

How Can This be Tackled?

Management and staff must be motivated by ensuring that they understand the important business benefits to be gained from capitalising on knowledge.

It could be helpful to create a small group of professionals to encourage cooperation between different functional areas; or undertake action learning or begin work as a virtual group.

- **In a Horizontal Organisation**

Changes in business environment due to strong competition, globalisation, the need to respond quickly to market needs and the rapid development of new technologies means that organisations are undergoing considerable changes:

- autonomous organisations are from time to time clustering in networks without a predefined hierarchy, with the aim of generating added value for their clients and grasping new business opportunities
- hierarchical structures are being smoothed out
- the introduction of process management and project-oriented organisations is promoting team working
- autonomy is increasing with individuals having more control and negotiating power.

²⁴ Caterina Ricciuti, *Organizzazione aziendale*, CEDAM

In this new “organic” business model, each part is an open system with its own autonomy. Each part has to interact with all the others. The key words for this model are networking; horizontal structure, human resources as part-of-the-whole and interaction.

In this kind of organisation, everyone is on the same level. A pre-defined structure does not exist and networking and communication acquire more importance.

The division of work is not so clear and everyone faces a variety of different tasks. This makes knowledge-sharing a priority and everyone is aware of this; everyone begins to recognise they need to learn from each other’s experiences.

How Can this be Achieved?

We believe that the following approach is a good starting point:

1. Identify who has the strategic knowledge and draw a knowledge map;
2. Create an internal information system which:
 - offers everyone the same information opportunities: where everyone knows where to find data and case studies, details of similar experiences happening inside the organisation, and who to ask for more details if required. Consider the role of individual or group meetings;
 - offer “users” only that information which relates to their position and role and the organisational structure: it is possible to create an information storage system, either electronic or physical, with different password levels according to the nature of the information. This will save time and resources, by ensuring that everyone is focusing on the core of the task.

What is needed is an internal information system which offers everyone the same information access without limitations (none of the password systems which are common in vertical structures) and knowledge technologies.

The main problem in any horizontal structure, untypical of knowledge based companies, is that a pre-defined information flow does not exist in this kind of organisation. Each person cooperates with others whilst at the same time competing with them. Here, knowledge is power and while some may see this change as positive and accept it as an opportunity for professional growth, others may feel threatened by it as an invasive process. In this kind of organisation it should be easier to implement a knowledge culture. In reality this is not always the case because managers face the psychological dimensions of the group with members defending themselves and regarding others as potential enemies.

We believe the following solutions might help:

- Creating working groups with the aim of building up training paths and knowledge sharing technologies (communities of practice, for example)
- Finding resources for projects dedicated to innovative training methodologies
- Investing in groupware technologies

Generally speaking, we believe that while new technologies can help to disseminate information, it is the human and psychological dimension that will be the main problem to overcome.

8.2. OPEN INFORMATION ACCESS

Today, many organisations have increasingly detailed and formalised data collection methods but often this information is in a multitude of different locations and may even exist at different sites of the same company. Some organisations have recognised these problems and designed information systems specifically to meet the needs of their staff.

Traditional approaches to information handling often mean locking information away and limiting access to a select few. This limiting of information flow often generates a mentality of secrecy and distrust. It also leads to much wasting of time and resources as information gathering may be taking place along similar topics in various departments, each oblivious to the information already existing within the company.

A more open approach to information access is to be encouraged. The majority of information or knowledge should be accessible to all who need it, when they need it.

Regular information meetings serve as a key forum for the exchange of ideas and information. They encourage the flow of information both from management down but also from the bottom up.

A company that encourages an open culture of information sharing involving all staff, not just at individual department level, will be an organisation that not only allows its employees to feel empowered and valued but also a stronger and better-informed organisation.

An intranet is another means of sharing information around the company although it may be a tool preferred by a larger company. Paper bulletin boards or a simple monthly newsletter can serve a similar purpose and are useful tools for a smaller company.

A central information 'library' in both traditional and electronic form allows employees to readily access information as and when required or, at least, to ensure that planned research is not duplicated.

However, an information resource or library needs to be properly managed in order to be effective. For example, it may be advisable that hard copies of some material is 'reference only' to prevent items that may be needed for a specific query or request from being 'borrowed' at a critical time.

Information has no value unless it assists managers in better decision-making and is distributed throughout the company. Traditionally, companies have relied on centralised systems to provide managers with routine information. However, recent developments in technology have enabled many companies to decentralise their systems. Managers have direct and quick access to data and information, and are able to tailor it to meet their own needs.

8.3. TECHNOLOGIES CAN HELP

Dissemination can be usefully supported by technologies, because they can quickly make the information flow to the right person, helping the sharing.

A brief analysis of the main technologies follows:

Networking

To share knowledge and information it is necessary to have an information structure which allows the exchange of data. Local area networks (LANs) connect PC, server and so on, and allow people to share information (files, databases) or resources (hard disks, scanners, printers). Different LANs in different geographic areas can be connected by geographic net. The most well known, and probably most used, networking technologies are the e-mail system and intranet. With an efficient e-mail system information can be communicated and exchanged, leaving a "mark" of the actions.

An intranet allows the delivery of information in the cheapest and easiest way, helping to solve the problems related to the information management and distribution. It is an internal system and so it is off-line and reserved. Intranet technologies allow connections between heterogeneous systems at low cost, easing feasibility and using standard techniques. The intranet must be flexible, planned in accordance with the internal structure and with the possibility to adapt it in the future to meet any changes in strategy.

Groupware

Groupware is the category of software designed to support team activities. This has developed because of the changes in organisational philosophy, which now focuses on “team” and the recent development of new technologies.

Groupware tools allow a team to improve internal communication and collaboration, helping co-ordination between people and teams.

The majority of these technology tools are currently based on the internet philosophy. They allow access to all the information available on the web, so that knowledge can be shared not only with internal but also with external collaborators (customers, suppliers...)

Knowledge Management Technologies

Many information systems support knowledge management processes and some of them permit an automatic classification of contents. They are able to understand the meaning of the text so they can:

- extract the key concept;
- automatically classify the document in pre-defined categories;
- create an automatic summary
- create a link between the different archived documents.

Many software products are on the market, but no ideal ones exist. Some of them must be customised, require a lot of resources to support, are initially expensive, and are therefore not easily accessible to SMEs. The choice depends on the amount of information that resides in the company and on the needs of the organisation.

8.4. CONFIDENTIALITY AND PROTECTION OF INFORMATION

All companies will have some critical information – the lifeblood of the organisation – that needs some form of protection; information that may perhaps make them vulnerable if it were available to competitors or, if lost, may have a major impact in terms of loss of sales, market share or damaged reputation.

Patents and trademarks, once registered will be in the public domain. However, the technical information surrounding the patent process before they are registered can often take months or years to develop so it is vital that confidentiality procedures are in place.

With the rise of e-commerce and the increasing use of the internet, more and more information is now being shared with business partners both nationally and globally and it is revolutionising the way business is done. Many financial transactions now take place electronically.

Much information is now stored or processed on increasingly powerful computers. There are concerns that such technology may be vulnerable and that there is a risk of information being sabotaged, altered, deleted or subject to fraud without the knowledge or against the wishes of the organisation. Businesses are also governed by legal obligations to protect their employees and need to ensure that personnel information is kept secure.

Whilst most competitors will carry out their own research into your activities, studies have shown that current or past employees may be responsible for over half of incidents of ‘lost’ information. This could be down to a disgruntled employee or is often inadvertent, due to carelessness or a lack of understanding of company policy.

External threats such as hackers or industrial espionage also need to be considered.

Technology such as routers, firewalls and cryptography may address some of the problems relating to computer information security but technology is not a substitute for good business practices in information security. A risk assessment of information/documents should be carried

out by management on a case by case or department by department basis to decide what level of controls are appropriate to their needs. In order to protect information, controls should safeguard whilst still ensuring information is available to those who need to use it. Having an EI function of some sort within an organisation, will help in processing information and storing it securely.

Some companies may wish to use an external evaluator to assess security management. In the UK, for example, a good starting point is the BSI Code of Practice for Information Security Management (BS7799). This gives extensive guidance on self-assessment and for assessing the security management of trading partners or how to go about getting an independent audit/evaluation of a business.

However, not all information is of the physical or electronic variety. Protection covers not only written material but also the spoken word. Your employees' knowledge and ideas are also valuable to competitors.

You will need to make a judgement as to what is appropriate to your business but there are general measures that may be worth implementing or made known to staff. This may become particularly pertinent as companies expand overseas where new employees may be accustomed to different working practices and procedures.

Example measures include:

- **Wiping the board or removing a flipchart** after using meeting rooms - a simple but important measure.
- **Screening of presentations and speeches** – it is important that these are checked to ensure they do not contain information which may be valuable to a competitor.
- **Securing of Documents** – sensitive or technical papers such as patent related information should be kept in a secure place and not left lying around in places where public access may be possible. Customer lists and pricing policies are amongst the most targeted information prized by competitors and should be protected.
- **Screening of Press releases** – again, these should be carefully reviewed prior to publication.
- **Management of Company visitors** – visitors should be signed in and escorted at all times and should not be allowed to wander into areas which may be of strategic value. Perhaps a colour-coded badge system to distinguish between staff and visitors could be applied.
- **Employee conversations** – ensure staff are made aware that they should be careful of what they say in public places which could be useful for competitors - on a train, at trade shows, for example.
- **Securing Electronic information** – critical information should be held on a secure computer or stored on floppy discs in a secure place. Deleting information on a computer does not mean that it cannot be accessed by the next user, a particular problem for companies sharing laptops between employees. Some computers or databases may need to be password-protected (and not left on default password settings).
- A rating or security classification system may be applied to documents/files to mark the level of security needs and which indicates who the information may be shared with. For example²⁵:
 1. Information which is private but not highly confidential (i.e. the majority of information)
 2. Information which could cause significant harm if disclosed (i.e. personnel information, customer information, etc)
 3. Information which could cause very serious damage if disclosed (i.e. business strategy, patent information, etc).

If using such a system, it is important that information is classified correctly according to the level of confidentiality and risk and that the terminology is adapted to the needs of the organisation. All staff should be made aware of the need for information security and trained in the principles behind the classification scheme. There is a risk of security breaches if the information is under-classified. Over-classification can be equally damaging as it can be costly and time-consuming and can result in information not being accessible to those who need it.

²⁵ Department of Trade and Industry, UK, Information Security Policy Group, CII Directorate. *Protecting Business Information and Keeping it Confidential.*

8.5. THE ETHICAL AND LEGAL FRAMEWORK FOR EI

A commonplace question about EI is the relationship between EI and industrial espionage. This is particularly pertinent when dealing with intellectual property rights (IPR) protection. But it also applies in everyday business practices, such as trade fairs, collaborative research projects or relationships with customers or competitors.

A basic position starts with clear professional ethical principles supporting practices; this applies not only to EI but also to the whole of the business and commercial practices in the enterprise.

EI excludes the consideration of the collection of relevant information through illegal or unethical methods. As the SCIP Association position makes clear, information that cannot be found via research should be deduced with good analysis.

It is important to recognise the importance of the limits to direct access or use of information in EI practice; particularly when laws relating to the free flow of information are in force. It is not only a question of ethics but also of legality, i.e. the ability to clearly differentiate between legal and illegal, or legal and unethical, is a requirement for all EI professionals. The SCIP Association²⁶ has developed a “Code of Ethics for Competitive Intelligence Professionals”, which sets solid and viable foundations for EI practice too.

-
- 1 To continually strive to increase the recognition and respect of the profession.
 - 2 To comply with all applicable laws, domestic and international.
 - 3 To accurately disclose all relevant information, including one’s identity and organisation, prior to all interviews.
 - 4 To fully respect all requests for confidentiality of information.
 - 5 To avoid conflicts of interest in fulfilling one’s duties.
 - 6 To provide honest and realistic recommendations and conclusions in the execution of one’s duties.
 - 7 To promote this code of ethics within one’s company, with third-party contractors and within the entire profession.
 - 8 To faithfully adhere to and abide by one’s company policies, objectives, and guidelines.
-

Source : SCIP

The growing development and acceptance of ethical principles will be needed to guarantee both the protection of the intellectual property and intelligence work in the future.

²⁶ Society of Competitive Intelligence Professionals (www.scip.org)

BOX 6

A FIRM WITH A KNOWLEDGE MANAGEMENT STRATEGY

PA TECHNOLOGIES, a 14 employees company from Thionville (Lorraine – France), optimises linings and coatings applied in industrial processes (pa.technologies@wanadoo.fr)

Since the creation of PA Technologies in 1983, its management has been interested in practices, which help to manage information for strategic purposes. *Our major objective consists in satisfying the needs of our customers, the updating our databases with relevant information has always been a daily activity, shared by all our staff according to specific rules.* - says Mr Arnaud. This particularly strong need of structured KM is mostly due to the company's activities related to composite materials. This fast-developing sector see every day appear new materials, technologies and processes. The company has to be extremely reactive to such new developments compare to traditional SME whose raw materials or products are not subject to such rapid changes. A further level of complexity of information that the company deals with arises also from the fact that its suppliers and customers are located all over the world.

We do not have problems searching for any information. We can access a large range of sources and we know how to make good use of them. Our internal management of the information has however always remained the real difficulty. A major concern is how to store and protect the extracted information. It took several months to initiate a real KM approach. The first EI diagnosis was made up by an expert from the Regional Chamber of Commerce and Industry. The delivery of a set of specific tools is being undertaken by an external consultancy firm and piloted by a well-known French KM expert, Jean-Yves Prax. One of the key objectives is to optimise the way in which information is shared. In the past it happened that internal experts, having learnt new technologies/processes, left without sharing their knowledge with the remaining staff. The logic according to which "when the old leave, the young have to learn everything from the very beginning" is not applied any more. Procedural steps have been adopted in order to ensure that if people do leave to move to another company: 1). the company do not loose the accumulated knowledge 2). they do not use the accumulated knowledge out of the company in order to prevent the danger of un-controlled spinning-off.

We also realized that by achieving better internal communications we could improve the quality of external communications. Once a week our engineers together with customers and external experts concentrate upon trying to resolve practical problems with the aim of identifying, analysing and formalising the technologies likely to prove most suitable for clients. Thus our company becomes a place where people exchange their pros and cons to achieve the common objective of better performance.

Streamlining the use of large volumes of technical knowledge became crucial. The information - once acquired, transformed and capitalised - was not exploited to its full potential and the message issued externally was on an irregular and poorly controlled basis. Put another way the company could be much better at explaining its skills and technical expertise to customers which can be shown through the following graphic:

TECHNOLOGIES	T1	T2	T3	T4	T5	T6
CUSTOMERS						
C1	X					
C2		X				
C3			X	X		
C4					X	
C5						X

6 technological products have been worked out for selected customers operating in the cellulose sector. None of any respective developments corresponding to each client has been presented to other client in the range. Thus only 6 out of 30 of the competences have been exploited to achieve its potential! This example reminds us that a new technical development can be transferred to more than one client through a marketing action. The knowledge in industrial applications can be deployed wherever it is considered likely to prove beneficial for the company.

That is why any stored information is strictly recorded and categorised. Different sources are organised along hierarchical lines. A functional organization chart with a framework of three expertise domains has been established and it is regularly shared within the company. A common hard disk has been installed and three strategic watch cells are in charge of new information supply and validation. Another expert is in charge of evaluating the accuracy of any information leaving. It is also this person's job to anticipate the customers needs and to alert internal technicians so they can consider how best to meet these demands. A further long-term objective is to "crystallize" the internal information through the means of an Intranet. This will operate as a public interface with limited access controlled via selected key words. A specific area focused on the strategic interests will be created with access reserved to the staff.

The first stage of our KM development will be finalised in June. At this point we will discuss the items of our initiative, which have worked best. Then we can continue to improve with our key priorities issues remaining as efficiency towards customers and profitability. In our company, the information is not of that much value in itself. It will have been of value if it makes company more reactive towards its customers, which in turns means delivering more competitive advantages. We want to be able to treat information as a product to be transformed into knowledge from which incremental profits can be derived. Put another way, our actions are totally determined by information, which has been preselected and analysed. We may work with tons of concrete but if you look behind, we are simply just dealing with information ! – says Mr. Arnaud.

Conclusion

This project was inspired by the European Commission's interest in policy development in relation to Economic and Technological Intelligence. It has been championed by partners from four European regions who share an interest in helping to make the management of information in SMEs deliver real business benefits.

We have discovered that EI techniques are being increasingly adopted by both European companies and business support organisations, but the take up is slow and many more organisations could benefit, particularly SMEs.

We believe we have identified a range of practical ways for SMEs to turn data into knowledge and then into intelligence. In parallel we have developed a sustainable EI process with clear steps and practical advice to those who wish to experiment with the approach.

We have demonstrated how EI currently happens, introduced readers to new and examined traditional techniques and we have presented our own new model approach and a view of current best practice in EI. This means we have developed detailed guidance for every stage of EI from the identification of information needs to the dissemination of results.

We have concluded that, as with any new approach, there is now a need for early adopters - visionary champions of change. The internet and the market are providing new opportunities and solutions, but public support is still required to accelerate the beneficial trends.

Those who wish to make EI their own will need the support of top management, who can commit to an inclusive approach. However, whatever the level of sophistication of the organisation or the available tools and techniques, in the end, making intelligent decisions is a human activity. People make the difference. We hope this guide will help a large number of people use their innate skills to the benefit of their organisations and society as a whole.

Who's who in EI?

There are various organisations that provide specialist information services in the field of Economic and Competitive Intelligence. A selection of these and other agencies specialising in the related fields of marketing, technology and patents, is shown below.

The reader is reminded that this list represents only a small sample of the wealth of EI-related entities available to the organisation.

ECONOMIC INTELLIGENCE

There are over 60 Associations and Societies in the information / intelligence field, aimed mainly at developing the skills of information staff and professionals and providing advice and contact details for their services.

ADIT — AGENCE POUR LA DIFFUSION DE L'INFORMATION TECHNOLOGIQUE
www.adit.fr

A public body which gathers, processes and disseminates information relating to international economics and technology.

AIIP — THE ASSOCIATION OF INDEPENDENT INFORMATION PROFESSIONALS
www.aiip.org

AIIP gives assistance to independent information professionals and provides them with a forum to meet and exchange views.

CILIP — THE CHARTERED INSTITUTE OF LIBRARY AND INFORMATION PROFESSIONALS
www.cilip.org.uk

A professional body providing information services, membership, and promoting current awareness issues and best practice for the library and information profession.

EIRENE — THE EUROPEAN INFORMATION RESEARCHERS NETWORK
www.eirene.com

Promotes contacts between European information brokers and aims to increase access to information and develop information brokerage as a commercial activity.

SCIP — THE SOCIETY OF COMPETITIVE INTELLIGENCE PROFESSIONALS
www.scip.org

A non-profit organisation aimed at enhancing the skills of knowledge professionals or EI staff. It provides education and networking to members in 55 countries.

SLA — SPECIAL LIBRARIES ASSOCIATION
www.sla.org

An international association, based in the U.S., offering a variety of services to help information professionals and a database for finding an Independent Professional.

STRATEGIC INFORMATION INSTITUTE
www.siinstitute.com

SII promotes best practices and ethics in managing information strategically as an asset. Education for strategic information professionals.

MARKETING

ESOMAR — THE WORLD ASSOCIATION OF OPINION AND MARKET RESEARCH PROFESSIONALS
www.esomar.com

Aimed at promoting the use of Opinion and Marketing Research, for improving decision-making in business and society. ESOMAR addresses both users and providers of research.

INFORMATION TECHNOLOGY SERVICES MARKETING ASSOCIATION (ITSMA)
www.itsma.com/europe/eu_home.htm

European-wide organisation helping professionals to review and improve their approach to marketing technology and communication services.

TSNN.COM
www.martex.co.uk/trade-associations/prodfr.htm

Online resource for the trade show and exhibition industry. Database on the internet for trade shows, conferences and seminars.

TECHNOLOGY

CORDIS — EUROPEAN COMMISSION RESEARCH AND DEVELOPMENT
www.cordis.lu

European Commission R&D information site.

EPO — EUROPEAN PATENT OFFICE
www.european-patent-office.org/espacenet/info/index.htm

EUROPE'S NETWORK OF PATENT DATABASES
<http://espacenet.com>

IPTS-JRC — INSTITUTE FOR PROSPECTIVE TECHNOLOGICAL STUDIES
www.jrc.es

This EC body develops techno-economic analysis to support European decision-makers.

OMPI /WIPO — WORLD INTELLECTUAL PROPERTY ORGANISATION
www.OMPI.org

International organisation dedicated to promoting the use and protection of intellectual property. WIPO counts 179 nations as member states.

Further reading

- BURKE MARIA, E.; HALL HAZEL: *Navigating Business Information Sources*. Library Association, 1998.
- CHAMBRE REGIONALE DE COMMERCE ET D'INDUSTRIE DE LORRAINE: *Bonnes pratiques en matière d'Intelligence Economique*, Nancy, 2001.
- COOK, MICHELLE; COOK, CURTIS: *Competitive Intelligence*. Kogan Page, London, 2000.
- ESCORSA, PERE; MASPONS, RAMÓN: *De la Vigilancia Tecnológica a la Inteligencia Competitiva*. Financial Times-Prentice Hall, Madrid, 2001.
- KAHANER, LARRY: *Competitive Intelligence*. Touchstone, 1997.
- PALOP, FERNANDO; VICENTE, JOSÉ M.: *Vigilancia Tecnológica e Inteligencia Competitiva. Su potencial para la empresa española*. Fundación Cotec, 1999.
- PORTER, MICHAEL E.: *On competition*. *Harvard business review book*. Ed. Harvard Business School Press.
- PRAX, JEAN-YVES: *Le Guide du Knowledge management*. Ed. Dunod, 2000.

Glossary

Different meanings are sometimes attributed to the terms included in the following list. Even when diverse sources have been consulted, we have tried to be consistent in our use of terms, the definitions presented in this document and our conceptual framework²⁷.

Alert

Service designed to receive automatically delivered electronic information on a specific topic, such as a technology or a competitor, on a regular basis or as the event occurs. Alerts are widely available via most commercial online and Internet database services.

Benchmarking

Comparison of a company's processes or business practices against those of another company which is considered best-in-class in this one area or process. The gaps that appear allow the identification of areas where an improvement is possible.

Business Intelligence

Management technique typically dealing with qualitative analysis, almost exclusively of a company's internal data. Refers to the broad categories of tools and applications such as software for gathering, storing, analysing and providing access to data to help better inform business decisions. Examples may include data mining, forecasting and statistical analysis software.

Competitive Intelligence

Monitoring approach and process oriented towards the market environment and to enhance marketplace competitiveness. Uses similar methods and tools as those of EI but aimed more specifically at the analysis of information regarding business competitors. Concept and focus developed and widely used by American companies.

Data

Raw, unconnected facts or numbers about persons or companies without a frame of reference
Data is the level immediately before information when working toward intelligence.

Data Mining

The process of scanning a massive data pool in computer readable form and organising the data to reveal a pattern. A data mining product can potentially offer a powerful intelligence tool to those companies that own large data pools.

Data Warehousing

Storage of large amounts of data by specific categories, so that they can easily be retrieved, interpreted and sorted using data mining systems to provide useful information.

Economic Intelligence (EI)

Set of concepts, methods and tools behind the intelligence cycle actions, supporting decision making within the framework of an established organisational strategy. Market, technology, legal, macroeconomic and other issues affecting the organisation operation are covered by EI.

²⁷ The following sources have been consulted to prepare the glossary: L. Kahaner, J.-Y. Prax, P. Escorsa & R. Maspons (see "Further Reading"), *Fuld Intelligence Dictionary (op. cit.)*, G. Bellinger (*op. cit.*), J. McGonagle (*A new adchetype for Competitive Intelligence*, Quorum Books, 1996).

Economic and Technological Intelligence (ETI)

Concept covering the same field as EI, specially stressing the aspects linked to technology. ETI as a concept is widely used within the framework of European Commission research and development programmes.

Groupware

A software category designed to support team activities through the open sharing of information on a computer network.

Information

A collection of bits and pieces of data linked by the relationships between them and allowing a formalised written, verbal or visual message.

Intelligence

Wisdom arising from the understanding of the basic principles that support knowledge, allowing the creation of scenarios, the modification of strategies and innovation.

Intelligence Cycle

The description of how intelligence develops out of initial questioning, through the acquisition, treatment and analysis of information until the delivery of the suitable solutions to the individual(s) asking the question, who may change or refine the questions once again, starting the intelligence cycle again, until he/she makes a decision.

Knowledge

Information showing a pattern relation that is understandable in itself and its implications by the user of it.

Knowledge Management (KM)

Approach including systematic and specific actions to facilitate the continuous collection, development, sharing and application of the intellectual capital (explicit, embedded or tacit) available in an organisation and addressing its objectives. EI is mainly oriented outwards and KM inwards, both approaches are open, clearly complementary and rapidly converging.

Patent Analysis

An approach that examines groups of patents to uncover patterns in a company's technology or new product development strategy. The technique most usually employed in Technology Watch.

Primary Sources

People or events that provide first-hand information that has not been changed or altered by selection or opinion.

Secondary Sources

Altered, not necessarily inaccurate information, often second-hand accounts or summaries of an event such as magazine articles or database material.

Strategic Intelligence

Intelligence provided in support of strategic decision making. Usually employed in France and other European countries as including the areas of work of Economic Intelligence and Knowledge Management.

Technology Watch

System focused on the active monitoring of technological topics or issues, such as patents, in order to provide intelligent support to decision making.

Workflow

Automatic generation and management of information concerning a particular process, using the framework of organisational relationships in order to attain the optimum intervention by the different agents in the process.

The CETISME Project

THE PROJECT

CETISME (Co-operation to promote Economic and Technological Intelligence in Small and Medium-sized Enterprises) is a project developed in 2001-2002 under the Innovation Programme (European Commission – Framework Programme), covering the regions of Madrid (ES), Lorraine (FR), West Midlands (UK) and Toscana (IT).

The project partners are presently promoting the awareness and introduction of Economic Intelligence (EI) approaches in their respective regions' SMEs, and have designed the project to:

- Summarise from current experiences, Economic Intelligence approaches and methodologies suitable for SMEs.
- Compare, using a benchmarking approach, the effectiveness of EI methodologies in solving strategic information problems in SMEs.
- Exchange good practice between regions and companies.
- Set up a transnational co-operation scheme in Economic Intelligence, providing SMEs from the partner countries opportunities to participate in training seminars in EI, co-operation meetings and joint RTD projects.

THE PARTNERSHIP

The CETISME partnership is formed by iDeTra, S.A. (Project Coordinator), Dirección Regional de Investigación – Comunidad de Madrid, Conseil Regional de Lorraine, Coventry University Enterprises Ltd. and Consorzio Pisa Ricerche. ATTELOR and Meta Group have collaborated with the partners in the project development

INNOVACIÓN DESARROLLO Y TRANSFERENCIA DE TECNOLOGÍA S.A. (IDETRA S.A.)

IdeTra, S.A. is a consultancy company specialising in innovation analysis and technology transfer and collaboration with Regional and State administrations in Spain and the European Commission. IdeTra, S.A. has its offices in Madrid (central office) and Brussels.

IdeTra, S.A. is currently running several projects aimed at increasing Economic Intelligence awareness among small companies. IdeTra, S.A. participates regularly in European projects and is also an EC services provider, and acts as an evaluator for several EC Directorates and Programmes, mainly in the Innovation and R&D fields.

DIRECCIÓN GENERAL DE INVESTIGACIÓN – COMUNIDAD DE MADRID

The Dirección General de Investigación (D.G. of Research), is part of the Education Department in the Madrid Regional Government, and is in charge of programmes aimed at promoting RTD. It manages the Regional Plan of Scientific Research and Technological Innovation. Among the programmes included in the Plan are those which support innovation in SMEs and strengthen links among research centres and enterprises. DGI is developing a line of Economic and Technological Intelligence, with the co-operation of all the research centres and universities based in Madrid, grouped under the label *madri+d*.

The DGI leads the Madrid Innovation Relay Centre (IRC), which also involves the Madrid Enterprises Association, the Polytechnic University of Madrid and the of High Council Scientific Research (CSIC).

CONSEIL REGIONAL DE LORRAINE – DIRECTION ECONOMIQUE ET DES RELATIONS EXTERIEURES

The Lorraine regional innovation policy is an essential part of the Regional plan known as : "Projet Lorrain" which spans 2000 – 2006. This Plan has three strategic objectives :

- Strengthening regional dynamics through reinforced competitiveness of the Lorrain territory ;
- Contribution to the social and territorial cohesion through regional solidarity ;
- Optimisation of the regional economy by stimulating creativity, innovation and entrepreneurship.

To support this policy, Lorraine decided to launch a major programme of dissemination of Strategic Intelligence practices to support both SMEs and intermediaries. This programme, DECILOR (Decision-making in Lorraine), will have spent around 5 M€ from 2001 to 2003, including 1 M€ from the European Commission (DG Regional Policy) in the framework of the Innovative Actions Programme.

ATELOR - TECHNOLOGICAL TRANSFER ASSOCIATION OF LORRAINE

ATELOR is a non-profit organisation created in 1984, with the objective of ensuring permanent support for a local Technological Development Network in order to implement national and regional policies of technological development for Small and Medium-Sized Enterprises. The members of the network are 27 regional actors of technological development. The main industrial sectors concerned are: wood, plastics, mechanics, high pressure water cutting, rapid prototyping, agro food, water and environment, information and telecommunications, welding, electronics and health.

COVENTRY UNIVERSITY ENTERPRISES (CUE) LTD.

Coventry University Enterprises (CUE) Ltd has a large number of qualified staff with many years experience in operating both regional and transnational projects and is the host organisation for the highly acclaimed Midlands Innovation Relay Centre (MIRC).

CUE Ltd is also the host organisation for the European Programmes Integration Centre (EPI Centre) established in 1999. EPI Centre work has included engaging regional SME's in FP5 proposals development, the International Benchmarking Project to compare innovation productivity and skills in thirteen European regions and the Information for Innovation project that promoted the use of economic, technological and market information within SMEs in the West Midlands objective 2 area.

CUE Ltd also hosts the Regional Foresight Project on behalf of Advantage West Midlands, the Regional Development Agency.

CONSORZIO PISA RICERCHE (CPR)

CPR was set up in 1987 to improve the transfer of innovative technology and expertise from the university and research environments to industry. This activity is carried out through R&D projects, training initiatives and innovative services funded by private companies and public institutions, as well as participation in major national and international technology development programmes. Consortium members are public and credit institutions, Universities and research institutions, and Italian companies.

META GROUP

META Group is an international company operating in the field of Research and Development (R&D) valorisation. The company operates internationally in the field of R&D exploitation, capitalising on a multidisciplinary base of competencies including engineering, economic and financial skills. Since 1993, Meta Group has worked in the field of local development with wide-ranging experience in conceiving and implementing plans for innovation and technology transfer in local economies, with a specific focus on innovative finance, R&D results valorisation, high tech start-ups support and creation. The is based in Terni-Umbria-Italy and has a reference point in Brussels.

THE AUTHORS

The team involved under the CETISME project in the preparation of this guide has been formed by:

- Arturo MENÉNDEZ – Senior Consultant and Partner, Innovación, Desarrollo y Transferencia de Tecnología, S.A. - COORDINATOR
- Eva ATANES, Senior Consultant, Innovación, Desarrollo y Transferencia de Tecnología, S.A.
- Joaquín ALONSO, Comunidad de Madrid – Dirección General de Investigación
- Carlos MERINO – Centro de Investigación sobre la Sociedad del Conocimiento (CIC), Universidad Autónoma de Madrid

- Pierre BOURGOGNE, Director Technology Transfert, Innovation and Strategic Intelligence, Conseil Régional de Lorraine
- Philippe GEFFROY, DECILOR Project Manager, Compagnie européenne d'Intelligence Stratégique
- Marie POPKOWSKA, Chargée de mission a l'Association de transfert de technologie en Lorraine ATTELOR

- John CORNBILL, Director European Programmes Integration (EPI) Centre
- Joanne DOBSON, Senior Project Manager, Coventry University Enterprise Ltd
- Karen ISON, Project Assistant, European Programmes Integration (EPI) Centre
- Emma NOBLE, Project Assistant, European Programmes Integration (EPI) Centre
- Alison TURNER, Project Assistant, European Programmes Integration (EPI) Centre

- Cinzia GIACHETTI, Director Technology Transfer Centre - Consorzio Pisa Ricerche
- Susanna CHERICONI, Technical assistant - Consorzio Pisa Ricerche
- Valentina DIANA, Technical assistant - Consorzio Pisa Ricerche
- Luigi AMATI-CEO - META Group
- Maria Augusta MANCINI, Junior Consultant, Market business unit - META Group

