

**SCORING COMPANY DISCLOSURE ON INTANGIBLES:
AN APPLICATION OF THE FERRARA METHODOLOGY
IN A EUROPEAN PERSPECTIVE**

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Abstract

The importance of intangibles is clear for all the market's operators. Notwithstanding the explosion of the market bubble, businessmen, shareholders, analysts know well that intangible assets play a key role in today's company value creation. Although it is difficult to understand the amount of this contribution and above all the value of these items, many researchers and practitioners, in recent years, have developed several models and methodologies to measure intangible assets or disclose them in the annual report or in other company documents (Intellectual Capital Statement and so on).

In this respect, in 2002 the University of Ferrara, in collaboration with the Italian Association of Financial Analysts (AIAF), has developed a model for measuring the level of disclosure about intangibles and representing this level in a Radar Diagram. The basic framework of this model is three-dimensional: it divides information between forecast and actual; it distinguishes five communication dimensions for intangibles (strategy and business model, innovation & IPR, human resources, organisation, customers and market); it catalogues companies according to diversified communication levels depending on the completeness and depth of the information provided (minimum information, reasoned information, extended information).

The aim of this paper is to verify test this methodology by applying it in a European context to appreciate the level of information on intangibles disclosed by Italian, French, German and UK companies. We consider the companies listed in the local stock market composing the main market indexes (MIB30, Midex, CAC40, DAX30 and FTSE100), and exclude banks, insurance and financial services companies as well as holdings. We considered at the end 126 companies. The analysis focus on 2001 annual reports. The results are analysed also considering the international accounting theory about these countries.

The innovation introduced by this study is the development of a new methodology by the University of Ferrara in collaboration with the AIAF. This model has good basis and can be adapted to different analysis: industrial or international samples of companies; on one single document like the annual report or on all the documentation prepared by the firm or on the companies web sites. The model could be also improved changing it on the basis of the kind of analysis that is conducted: the analyst can search all the information about intangibles disclosed or search them looking at a special benchmark; the communication dimensions can be lower or higher than five and the visual graphic can be changed on this basis; and so on. Especially this is a single methodology for quantifying and representing the level of disclosure about intangible assets. It is a good instrument to help all the stakeholders of a company to better realize the value of the intangible investments and the weight that these items have in the life of the company.

KEY WORDS: INTANGIBLES, SCORING METHODOLOGY, EUROPEAN COMPANIES.

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1. INTRODUCTION

The investors request for information is growing, especially that relating to intangible assets. The increasing demand is the result of the need felt by operators to try to understand the real value of a company. The value of a business activity is no longer based on material or financial assets, but on intangible ones. Recent data suggest that tangible assets account for a mere 38% of the value of a business, compared with as much as 62% in the early '80s. The decrease is partly due to the development of the activities linked to the so-called new economy (on the other hand, we must not forget the important role these resources play for all kinds of companies, even for those operating in the more traditional sectors). Intangible assets account for the remaining 62%. It is a shame, though, that financial statements take care for the most part of illustrating and explaining the remaining 38%. This gap is even wider for new economy enterprises. For such companies, the application of standard accounting procedures often means that their financial statements reveal far too little about their intangible assets. We can almost think that the more involved a company is in intangible assets, the less useful its financial statements will be in trying to understand the difference between its book value and market value (Steward, 1995).

Other types of operators are also asking for more information. Companies employees, clients and analysts are all asking for more information in addition to that already requested by investors. Companies are trying to cope with such pressure either by disclosing more information in their accounts or by producing new documents which, by addressing some specific operators, are attempting to give more details particularly on intangible resources (presentations to analysts, environmental and social reports, intellectual capital statement).

Most of the information provided on intangible assets are of voluntary nature since, from a regulatory point of view, regulations requiring companies to disclose information on this kind of assets in their accounts are few and far between. Many authors believe that the annual accounts fail to represent the correct value of a company. Such documents, however, remain the only ones the company provides to all people concerned in general.

The information contained in the financial statements should be relevant, reliable and useful (AICPA, Special Committee on Financial Reporting). Relevant in order to either confirm or modify any investment decisions. Reliable to ensure that those concerned consider such information as the true picture of the asset and the effects that its use has on the company (linked to this concept are those of credibility and transparency of such information). Useful for those operating both within and out of the company in order to make any kind of choice. The need for more in-depth and detailed information revolving around such assets is felt even within the company itself by management and employees alike. The objective of nearly all economic activities is to

create value, mainly through such assets, but if we do not know how much value has been created and, above all, in which way, how can future activities be planned and, equally, how can we verify that set targets have been achieved?

It is for this reason that the analysis conducted in this paper focuses on the annual report. The financial statements of the companies which make up the main indices of the leading stock markets in Europe - France, Germany, Italy and United Kingdom (CAC40, DAX30, MIB30 and Midex, FTSE100 respectively)¹ - will be examined in detail. The information on intangible assets contained in these financial statements will then be valued according to the model developed early in 2002 by the University of Ferrara in cooperation with AIAF. The model has been altered in some ways to make it more consistent with the analysis that will be undertaken.

The paper will be developed as follows: it will start from a brief description of the model, to move then to the presentation of the changes that have been made on it. After that, the methodology used in the analysis will be illustrated, also pointing out the differences from the one used by AIAF. Finally, the results of the analysis will be shown and these will form the basis for some considerations about the model and the analysis carried out.

2. DESCRIPTION OF THE MODEL

In recent years the Italian Association of Financial Analysts has become involved in the study of several issues about intangibles (in particular for explaining the growing differences between the values of companies, as disclosed in the financial statements, and the values expressed by the stock market).

The latest study, in cooperation with the University of Ferrara, has concerned intangible assets information. The aim of this study is to create a company classification system on three levels depending on the capacity to provide exhaustive information about intangibles. The model is based on a three-dimensional framework (Figure 1).

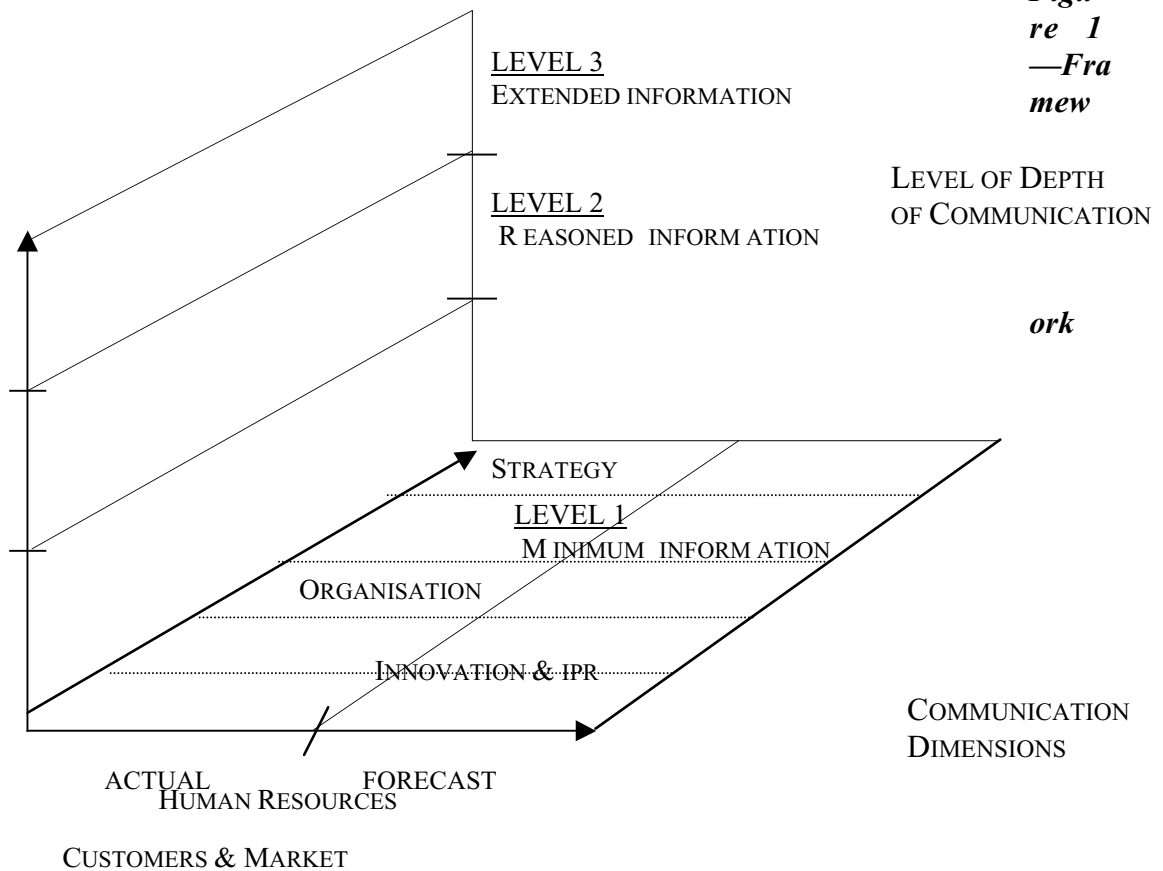
The three dimensions are the following:

- a) the nature of information: forecast and actual;
- b) the five communications dimensions: strategy, customers and markets, human resources, processes and innovation, and finally, organisation;
- c) the level of depth of communication: minimum information, reasoned information and extended information.

The model should be applicable to different industries. Obviously, for certain industries, information on several dimensions could be unavailable or it might not be relevant for the analysis. For example, the processes and innovation dimension is unquestionably relevant for new economy companies, but not for companies operating in traditional markets (even though intangible assets are always important for all types of companies).

¹ The choice of these countries is not a random one. Starting from Italy, we have chosen those stock markets which, by weight, number of quoted companies and significance, are the most important ones within the European context. The FTSE 100, CAC 40, DAX30, MIB30 and Midex indices are brief indicators of economic performance in the countries considered.

*Figure 1
—Framework*



RE OF INFORMATION

Source: AIAF, 2002.

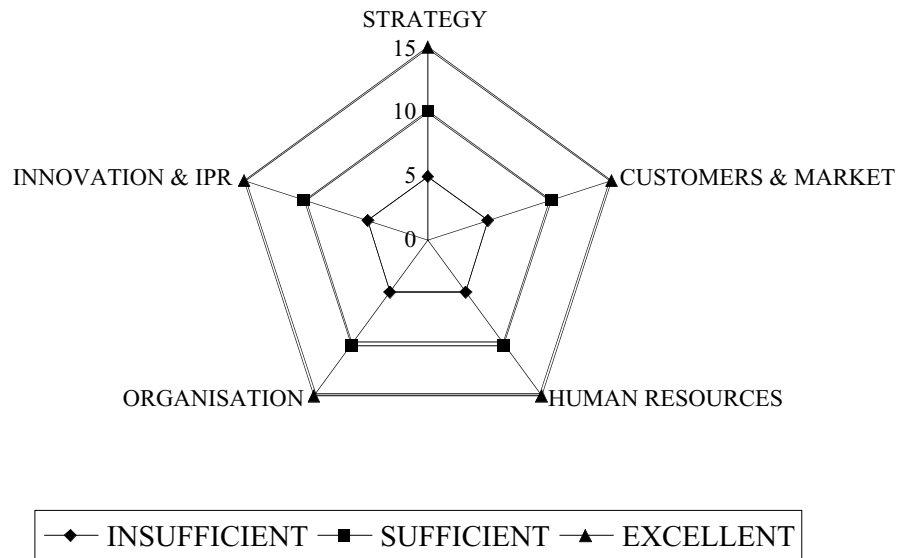
In consideration of the level of depth of communication, there is also a zero information level where the information provided by the company covers none of the five communication dimensions. In such cases, stockholders are not able to formulate any estimation while the data available are inadequate. The difference between zero information and minimum information is that the latter allows to form at least a minimum image of the intangible investment of a company while this is not possible with zero information. The second level, reasoned information, reflects the company's specific intention to increase its communications concerning intangible assets. At the third information level — extensive information — the company draws up a specific document relating on intangible assets. This document may be structured on the basis of the five dimensions of communication or more, and each part may include qualitative and quantitative information on the company's intangible assets.

To develop the model, a Radar Diagram was designed, again in collaboration with the University of Ferrara (Graphic 1). This graphic helps to represent the results obtained and it facilitates conclusions and outline for the research. The diagram can also

represent both the level of information supplied by an individual company and the level of information supplied by a sample of companies.

The scale goes from 0 to 15, representing the measurement of communications capacity. A zero score represents a zero information level; on the other side of the scale, a score of 15 represents optimal (extensive) information. Between these two extremes, two intermediate information levels have been identified: insufficient (minimum), with a score of 5, and sufficient (reasoned), with a score of 10.

Graphic 1 — Radar Diagram



Source: AIAF, 2002.

3. METHODOLOGY

The model, as illustrated in Official Report No. 106 edited by AIAF, will not be used for the analysis that forms the subject matter of this paper. A few changes have been made to that model to make it more suitable for the purposes set by this report. First and foremost, a few mathematical and statistical concepts will be introduced, and these will then be employed to summarize the results attained from the application of the model. Following that, the sixth dimension of communication - corporate governance - will be presented, as well as any information contained in financial statements which falls within this and the other five dimensions of communication.

3.1. MATHEMATICAL AND STATISTICAL NOTIONS

We introduce a formula for calculate the area of the hexagon². A way of calculating this area is to divide the hexagon into six triangles, calculate the area of each triangle, and then sum the areas to obtain the total area. The formula used for calculating the area of a triangle is:

$$S = \frac{l_1 \times l_2 \times \sin \alpha}{2}$$

where l_1 and l_2 represent the sides of the triangle and α represents the angle between the two sides. Angle α measures 60 degrees, obtained by dividing the turn angle of 360; by 6.

As for the statistical analysis, we use some formulas for a better interpretation of the data obtained from the analysis. The best index to be used for the scatter analysis of the data around their average value is the standard deviation. The standard deviation is obtained from the square root of the variance, or:

$$= \sqrt{\frac{\sum (x_i - \bar{x})^2}{n}}$$

where x_i is the i^{th} datum analysed, \bar{x} is the sample average, and n is the number of data. The higher the standard deviation, the wider the data scatter.

For a clearer illustration, we also show the sample average formula which will be used to calculate the average information value supplied annually for all the communication dimensions:

$$= \frac{\sum x_i}{n}$$

3.2. THE SIXTH COMMUNICATION DIMENSION: CORPORATE GOVERNANCE

Corporate Governance, meant as the system of rules according to which companies are managed and monitored, is the result of regulations, traditions and lines of conduct worked out by each single economic and legal system and cannot certainly originate from one model alone, which can be exported to and imitated by all systems³.

² This formula will be useful in the next section for calculating the area of the pentagons obtained from reporting in the Radar diagram the results of the empirical investigation.

³ In Italy, the fundamental bodies are the Auditors Committee and the Board of Directors. In the UK, it is the Board of Directors, together with a variable number of committees, each with their own specific functions. In Germany, working along the Board of Directors there is also a

It is made up of all the relations between managers, directors and staff. Corporate governance refers to the manner in which the company is run and controlled.

A good corporate governance system is able to ensure that the company is using its resources efficiently. Furthermore, it helps to ensure that, as it goes about its business, the company is also aware of and takes an interest in the issues affecting the society in which it operates. In short, this ensures that the company concerns itself with the good of society at large, and takes care of maintaining investors' confidence and of attracting fresh capital⁴.

In the AIAF model, information about corporate governance is included within the Strategy dimension. Here, we have preferred to create a new dimension altogether, the sixth one, in which to consider all information about corporate governance on its own. To consider such information singularly within the strategy dimension would not have had much sense, as it would have been connected with the institutional structure, rather than with the problems and trends linked to strategy. On the other hand, to consider any information about corporate governance as a single piece of information within the strategy dimension would have meant to belittle considerably both the weight and importance that this has within a company, both in the process of creation of value and as an intangible factor.

The differences between the corporate governance systems of the countries we have analysed are significant, particularly with regard to the institutional structure and the way responsibilities are assigned. Above all, considerably different is also the importance attributed to this aspect of the business by these countries. Through our analysis, we will attempt to highlight this aspect as well. The weight attributed by each country to this dimension of communication should emerge from the results attained. Of all the countries taken into account, UK is expected to reveal more information about corporate governance in financial statements, as this country has been the first to open the doors to self-regulation through the Cadbury Report of 1992 and, therefore, the first nation to show concern for these issues.

3.3. THE INFORMATION CONSIDERED FOR EACH COMMUNICATION DIMENSION

The table below shows the information considered for each communication dimension. This information could be qualitative, quantitative, benchmark and could be of the current period or of the future periods.

Looking at the table, we can see that some information is far from being of an intangible nature (e.g. the number of employees). We believe, though, that the information provided in each single area helps somehow to represent the situation of a certain intangible resource within a company (in the case of the number of employees and of all the information in this area, this gives a view of the intangible factor represented by the human resources operating within a company).

Both the list supplied by AIAF in their Official Report (which is not exhaustive and comprises 86 indicators split between the five dimensions) and the one given by the paper herein are not born from specific research aimed at investigating which

monitoring committee. In France, a few committees are also present in addition to the Board of Directors.

⁴ OECD Principles of Corporate Governance, 1999.

information can be traced back to any given area and which must necessarily be present in annual accounts.

It is not simple to establish beforehand which information must be contained in financial statements in order to meet the information requirements of all stakeholders. The documentation supplied by a company may contain some information that stakeholders do not believe to be fundamental for their valuation of that company's intangible investment, but that falls nonetheless within one of the six dimensions; on the other hand, within the accounts some information deemed to be fundamental by the stakeholders could be missing altogether.

It is believed that if we try to define the procedures followed by companies, as is the case in this report, it is not fundamental to identify the information we seek within the documentation drawn up by the companies. If, instead, we wish to seek the correspondence between the information provided in the accounts and that required by market operators, such benchmark becomes crucial. For its construction, we could resort to questionnaires to be put to all types of operators involved in the economic field and, through these, prepare a list of information that companies should necessarily provide and, on the basis of this, then analyse the real procedures followed by companies.

Table 1 — Information considered

CUSTOMERS & MARKET	HUMAN RESOURCES	ORGANISATION
<ul style="list-style-type: none"> ✓ Customer (name, number, localisation, type, and so on) ✓ Supplier (number, localisation, and so on) ✓ Market (description, market share, and so on) 	<ul style="list-style-type: none"> ✓ Employee (number, number of woman, full-time, part-time, and so on) ✓ Remuneration policy ✓ Employee policy ✓ Training activities 	<ul style="list-style-type: none"> ✓ Organisation chart ✓ Factories (number, localisation, and so on) ✓ Cultural activities ✓ Organisational structure (description)
INNOVATION & IPR	STRATEGY	CORPORATE GOVERNANCE
<ul style="list-style-type: none"> ✓ R&D (activities, expenses, investments and so on) ✓ Researchers (number, name..) ✓ Technologies ✓ Objectives and organisation .. 	<ul style="list-style-type: none"> ✓ Strategy (plan, agreements, and so on) ✓ Focus, mission ✓ Target and objectives ✓ Environmental or social policy 	<ul style="list-style-type: none"> ✓ Boards (types, members, rules, responsibilities, and so on) ✓ Committee (type, members, responsibilities, and so on) ✓ Relationship with shareholders ✓ Internal control

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3.4. SCORING METHODOLOGY

The next step consists in establishing the methodology to be used for the analysis. AIAF, in its Official Report, had also developed a brief empirical analysis of nine companies listed on the Italian Stock Exchange in order to verify the validity of the model presented in the previous pages. The analysis conducted by AIAF provided for the identification of three key indicators⁵ for each dimension of communication. Each of these three indicators was then given points following the guide given in Table 2.

The result obtained from the analysis conducted by AIAF was that the companies taken into account were rated as having an adequate level of information disclosure. AIAF had also come to the conclusion that the more these companies disclosed information that was not required by current regulations, the more they provided information that enabled them to be positioned at an adequate level of disclosure. Thus confirming what many authors had found, that is to say that most of the information given about intangible assets is of voluntary nature, being the accounting rules in this field somewhat wanting in terms of setting out specific provisions.

The methodology we intend to adopt in this work differs from the one put forward by AIAF. First of all, we will consider all the information disclosed in the financial statements which falls into any of the six dimensions taken into account. This helps to highlight those companies that provide just three types of information, making them stand out from those disclosing more.

The criterion of valuation represents a highly complex choice. The method employed by AIAF assumes that the reader has certain knowledge of financial statements, and that he/she is therefore capable of rating each piece of information himself/herself by awarding it a certain number of points. In our view, this method of valuation is subjective, as the person who is about to assess the financial statements and the information contained in it decides the points. The choice of the three kinds of information to be considered is subjective in it and does not preclude the fact that someone else might have chosen different kinds of information for the same annual accounts. This aspect could be resolved by giving some indications about what kind of information should be seen as fundamental for each dimension of communication for each type of company.

Table 2 — AIAF's scale for ranking disclosure on intangibles

INFORMATION QUALITY	SCORE
No information	1
Insufficient information	2
Sufficient information	3

⁵ With this term we mean the indicators that are relevant to the type of company considered, also according to the type of activity carried out.

Sufficient and detailed information	4
Detailed and forecast information	5

Looking for the least subjective valuation method possible, several ideas have emerged. Initially, it was thought that the maximum rating (15 points) should be given to the best overall information (meant as the package of information found within a single set of annual accounts) about one dimension of communication, and, subsequently, to give a lower rating to the remaining information by comparing it with the one chosen as a benchmark. This mechanism would help to solve the problems linked to the discretionary nature of information rating, but with a large sample group of companies to analyse, the comparison between the various reports becomes difficult. What's more, the best information in a sample group of companies taken into account could no longer be seen as such if we expanded the sample to include other businesses. In other words, the information can be considered the best only in relation to the sample considered.

To solve this problem, it would be necessary to establish from the start what is the best information that we expect to find for each dimension of communication, but this is far from simple to do. We could establish from the beginning that the best information is formed, for example, by a certain amount of information, yet this does not prevent any company from disclosing more in its annual accounts. In doing so, furthermore, we would only touch upon the quantity of information, neglecting the quality aspect of it. On the other hand, it is even more arduous to establish the contents of such information as well.

For the purposes of this analysis, we have decided to consider two parameters for our valuation: the type of information and the number of it. The first parameter gives some indication of the breath of information given about one dimension of communication; the second about the depth of the same, that means how detailed the information given is. Let's try to explain the use of these two parameters by making an example. Let's assume that for the Customers and Market dimension, we find information about market share. Such information is considered as a type of information. In a set of annual accounts, this piece of information can be expressed as referring to either the group, or a single company, or a specific market, or worldwide. Assuming we find these four pieces of information, we will have four items of information as far as the number of information is concerned. Of course, each piece of information present in the annual accounts will be counted only once, even if it appears several times⁶.

On the basis of these parameters, two lists will be drawn up of the companies considered, rating them in a descending order from the one supplying the most information in terms of type and number to the one supplying the least. The top one of the list will be assigned 15 points⁷, while the others will be given points in a proportional way⁸. In doing so, each company will obtain two different ratings, one for

⁶ For example, the number of employees can appear in many sections of the financial statements. It will only be counted once, both as a type and as a number for the purposes of our analysis.

⁷ The rating system proposed by AIAF is being maintained.

⁸ For example, if company A (ranking first in the list) provides 10 types of information about one dimension, it is awarded 15 points. Company B instead provides 7 pieces of information.

each dimension of communication. The average calculated between these two ratings will become the overall rating attributed to the information disclosed by a company about one dimension of communication. It has been decided to use the simple average without attributing any weight to the two parameters because it is thought that both help provide, in equal measure, a useful representation of the information disclosure found in the documentation analysed.

4. SAMPLE AND DATA COLLECTION

The analysis presented in the following pages has as a subject matter the application of the model in a European context. An analysis will in fact be made of the companies composing the main indices of four European Stock Exchanges: CAC40 (France), DAX30 (Germany), MIB30 and Midex⁹ (Italy)¹⁰, FTSE100 (United Kingdom). Such indices represent the economic trend of the country being looked at.

Of course, a numerically high index, such as the UK one, is more representative than those considered for the other three countries. In broader terms, such indices are not always representative of the economic trend of a nation, but only of the economic trend linked to some types of companies. For example, as far as the Italian Stock Exchange is concerned, the indices considered includes the biggest companies present in Italy, but the general economic context is largely made up of small/medium-sized enterprises whose economic trends are profoundly different from those affecting larger companies.

We have not taken into account either the insurance and banking companies as they are subject to different regulations from companies operating in other sectors in drawing up company annual accounts. For the same reason, companies offering financial services have also been excluded. Even holding companies have been omitted for they seldom provide information about intangible assets since their main activity is to either buy or sell shareholdings in other companies, without producing any goods or providing any services themselves. Also foreign companies that have a stock market listing on any of the Stock Exchanges above have been excluded. By foreign we mean a company which is not domiciled in the country where it is listed.

The final sample for each country, after excluding the financial and insurance sectors and the non-national companies, is composed by 27 companies in France, 19 in Germany, 28 in Italy and 65 in UK.

The documents taken into consideration are the annual report of the 2001 financial year.

The points it will be awarded will be calculated by the following proportion: $10 : 15 = 7 : X$. Company B will be awarded 10.5 points.

⁹ The Midex is the summary index calculated on the base of a sample made up of the 25 titles following those making up MIB 30, also selected on the basis of capitalisation and transactions, and utilised to underlie derivatives. The index is calculated daily during the phase of continuous dealing with a frequency of once a minute on the basis of the prices of the latest contracts concluded on each component share (Borsa Italiana web site).

¹⁰ We have considered two indices because excluding the financial and insurance companies the number of companies remaining was very low.

5. RESULTS

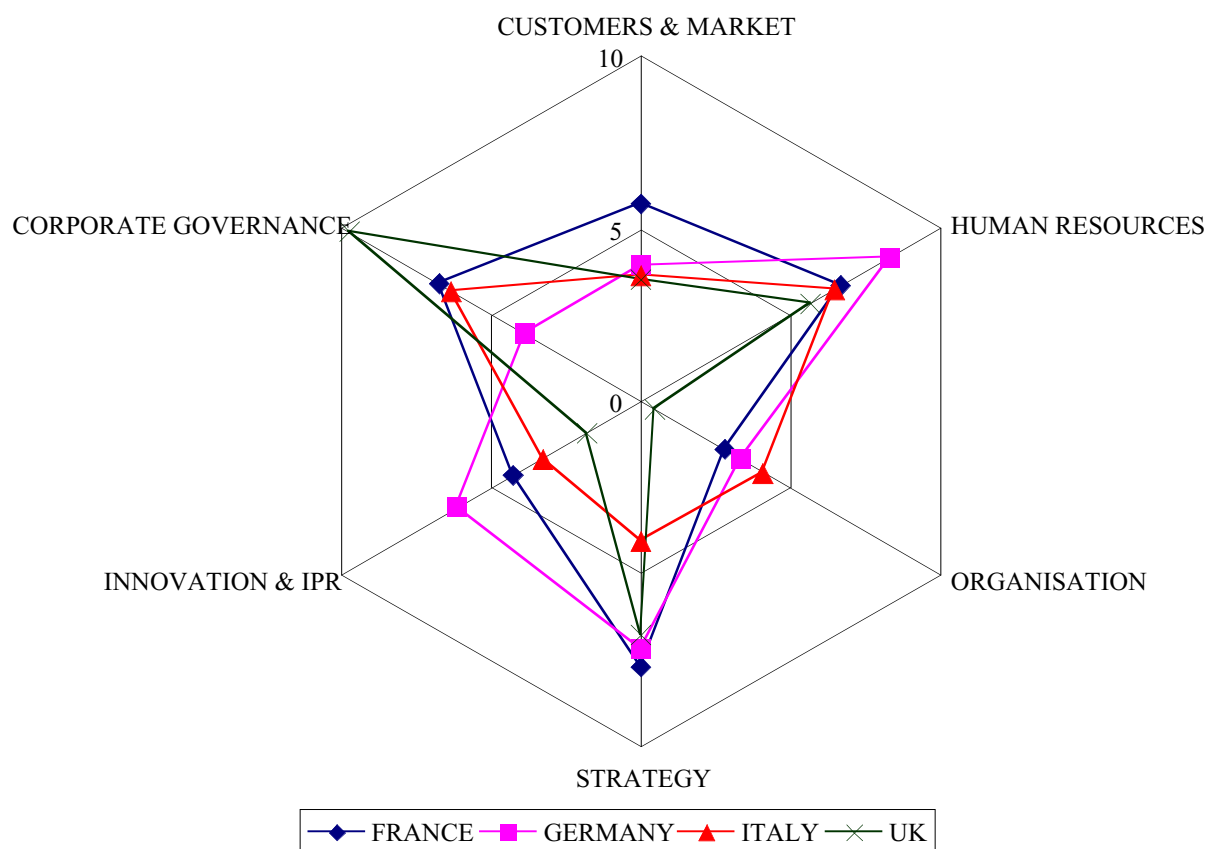
Before commenting on the results, we would like to introduce a concept of international accounting. Accounting could be considered as subdivided into clusters.

Two of these are the Anglo-American and the Continental ones (European countries). The first of these two accounting systems is thought to be oriented towards supplying information to meet the decision-making requirements of investors and creditors alike, and is based more on substance than form. The second appears to be more designed to comply with regulatory requirements, hence more juridical and conservative. The countries considered in our analysis belong to these two clusters. UK belong to the first one, and the other three countries to the second one. Have our results confirmed this concept or not?

The Radar Diagram below shows the results obtained by the analysis conducted¹¹. French and German companies disclose more information than the other companies considered about two communication dimensions. French companies give more information about Strategy and Customers and Market. German companies about Innovation and IPR and Human Resources. Italian and UK companies give more information respectively about Organisation and Corporate Governance.

Graphic 2 — Levels of information give by the four countries considered

¹¹ In Appendix B is represented the single results obtained for each country.



The high scores obtained by French and German companies may be due to the number of companies considered for these countries. In fact, the companies considered are the bigger in these context and we can expect that they will disclose a lot of information. Many studies, in fact, highlight that the size of the company is a factor with a positive influence on the level of voluntary information provided. As the disclosure of information about intangible assets is mostly voluntary, it may be believed that the high rating obtained by these companies is due to the large size of the companies included in these sample.

Wanting to make some observations on each single communication dimensions, as already mentioned in the previous pages of this report, the UK companies actually supply more information about Corporate Governance, than other countries. This highlights the importance of this dimension in the UK context.

As far as the dimension of Human Resources is concerned, despite the little information required on this subject by the various regulations (only the total number and breakdown, the latter either geographic or by business unit), it appears that companies tend, on the contrary, to enrich the annual accounts with information about this important resource. In fact for the Continental companies, the disclosure about Human Resources obtains a score between the level of insufficient and sufficient

information, as well as the UK companies obtain a score near the level of insufficient information.

The dimension of Organization does not appear to be of too much interest in the field of information disclosure to those outside the company. The ratings remain low for all the countries considered, mostly below the level deemed to be sufficient, in particular the UK is positioned at a level of disclosure that is almost nil.

Table 3 — Average and Standard Deviation for the six communication dimensions

	FRANCE		GERMANY		ITALY		UK	
	AVG	SD	AVG	SD	AVG	SD	AVG	SD
CUSTOMERS & MARKET	5.70	2.34	3.92	2.00	3.63	2.93	3.51	1.49
HUMAN RESOURCES	6.63	2.05	8.32	2.15	6.49	2.76	5.67	1.11
ORGANISATION	2.78	2.29	3.36	3.06	4.12	2.77	0.49	1.20
STRATEGY	7.69	2.42	7.17	1.52	4.04	2.32	6.77	2.48
INNOVATION & IPR	4.29	3.00	6.12	3.17	3.32	2.51	1.83	2.66
CORPORATE GOVERNANCE	6.74	2.11	3.89	1.46	6.36	3.09	9.75	1.67

Table 4 — Hexagons areas

COUNTRY	AREAS
FRANCE	77.04
GERMANY	72.57
ITALY	53.93
UK	39.17

The same can be said for the dimension of Customers and Market. This dimension, on average, obtains ratings which are pitched around a level of insufficient disclosure. This result is perhaps influenced by the different activity performed by the companies analysed. Some types of companies, such as for example those operating in telecommunications, provide a high number of information which falls within this category, whereas companies operating in other sectors provide significantly less.

The Innovation and IPR dimension, as the previous one, appears to be influenced by the sector in which the company operates. Not all the sectors attribute a great deal of

importance to this dimension. It could be said that there are sectors for which this aspect is crucial and others for which this is hardly significant. This dimension is in fact very important for High Tech companies or for those active in related sectors.

The Strategy dimension appears to be of interest to all the companies considered, as indeed is corporate governance. These two dimensions, unlike the previous one, appear not to be at all influenced by the sector the company being analysed belongs to.

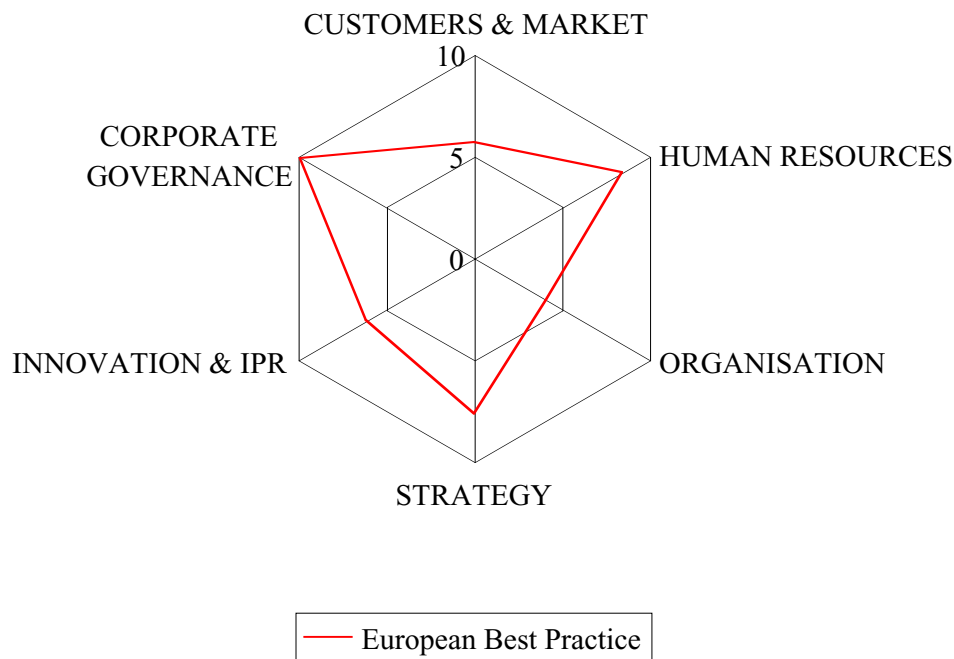
Tables 3 shows the average scores and the standard deviation calculated for each communication dimension for the four countries considered.

The standard deviation calculated for the UK companies is lower than the standard deviation obtained for the other countries, except for two communication dimensions: Strategy and Innovation and IPR.

Table 5 — Average per area of the European Best Practice

	EUROPEAN BEST PRACTICE
CUSTOMERS & MARKET	5.70 (France)
HUMAN RESOURCES	8.32 (Germany)
ORGANISATION	4.12 (Italy)
STRATEGY	7.69 (France)
INNOVATION & IPR	6.12 (Germany)
CORPORATE GOVERNANCE	9.77 (United Kingdom)

Graphic 3 — European Best Practice



This means that results obtained for companies of this Country are more homogeneous than the results obtained for companies of the other three countries. This level of uniformity might be due to the higher number of UK companies considered in respect of companies that belong to France, Germany and Italy.

Standard deviation values calculated for French and Italian companies are quite high and never near the best value, that is one; so we can think that different companies that operate in different industries form these two sample.

As confirmation of the results achieved, Table 4 shows the areas calculated for each country.

From the results obtained it appears interesting to construct a pattern European best practice with reference to the disclosure on intangibles. This can be built up by choosing from the four countries the best practice for each area. The question here is: if a company is willing to adopt the average best practice per area, which have emerge with reference to the four country considered, then which type of disclosure would this company present about intangibles? The area of the hexagon get in Graphic 3 is 119.48, that is quite higher than the areas calculated for the four country considered in our analysis.

6. CONCLUSIONS

It is clear that the traditional financial statements are not able to provide any interesting information on the intangible assets that are key to the company. The absence in the annual accounts of the description of some intangible resources, which do not meet the requirements for inclusion as assets in the accounts, is a strong handicap

for this document. This shortcoming contributes to the fact that the main document companies have to disclose information loses some of its relevance.

Disclosure, however, is to date the only possible solution to the scarce representation of intangibles provided by financial statements. The model proposed by AIAF in collaboration with the University of Ferrara allows to represent, both quantitatively and graphically, the results obtained from its application. Furthermore, the model is suitable both for an inter-temporal analysis between the financial statements of a group of companies, analysed in a pre-set period of time, and for the analysis of companies active in various sectors, markets or countries.

The analysis focuses only on annual report. We could also extend the analysis to social and environmental reports and to presentations to analysts. In this case, the analysis would tend, however, to reward those companies that produce all this information and to penalize those that neglect these new reporting systems.

It is clear, on the other hand, that the differences between the economic activities carried out by the companies examined have a bearing on the results obtained. A research focusing on companies operating in the same sector could possibly limit this negative aspect.

In our analysis, we have furthermore attempted to use the most objective valuation method possible, so as to reduce any valuation of subjective nature on the part of the researcher which could mislead any results obtained. This does not rule out that the same analysis carried out by different researches may lead to different results, since there is no fixed information research system. Taking as a reference all the information given in the financial statements in the six dimensions considered, we might think that the results obtained by two different observers should not be very different.

The results that emerge from our research are partly unexpected. Continental European companies supply much more information on intangible assets than UK companies. In general, the accounting standards of such countries are highly conservative and influenced by factors of a fiscal nature. It is not for this reason that these companies appear to neglect the disclosure of information on intangible assets. This type of disclosure develops outside these highly conservative accounting standards and assumes the nature of voluntary information. On the contrary, a country such as the UK, strong of a more developed and updated accounting culture, appears to provide a smaller number of information on such assets.

The results are somewhat surprising. UK seems to provide low information about intangible assets notwithstanding in the accounting textbook this country is at a high level in the accounting spectrum closed to United States. In this paper we have shown that looking at the disclosure about intangibles UK companies give less information than the other countries considered.

The procedure emerging from the results obtained would appear to clash with the standard principles of international accounting concerning these countries. Of course, these results are a reflection of the reality of small groups of companies. There is a much wider number of businesses operating in these markets than we have analysed. The sample group taken as a benchmark is designed to act as a summary of these contexts, but is only representative of a small number of companies.

The results obtained from the current work remain relevant, nonetheless, given the huge weight that the problems linked to the accounting and reporting of intangibles have within the economic and academic world. This analysis could be the basis for other studies based on different sample groups. Being still at a developing stage, the

model itself could be improved further in order to perfect the measuring of companies disclosure about their intangible assets.

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APPENDIX A - SAMPLE

FRENCH COMPANIES

COMPANIES	SECTORS
1 ACCOR	Leisure Entertainment & Hotels
2 AIR LIQUIDE	Gas services
3 ALCATEL	Telecommunications Services
4 AVENTIS	Pharmaceuticals
5 BOUYGUES	Construction
6 CARREFOUR	Food and Pharmaceuticals Product
7 CASINO GUICHARD	Food and Pharmaceuticals Product
8 DANONE	Food Producers
9 FRANCE TELECOM	Telecommunications Services
10 L'OREAL	Make up Producers
11 L.V.M.H.	Textile
12 LAFARGE	Construction
13 LAGARDERE	Media
14 MICHELIN	Automobile
15 PEUGEOT	Automobile
16 PINAULT PRIMTEMPS	Distribution
17 RENAULT	Automobile
18 SANOFI-SYNTHELAB	Pharmaceuticals
19 SCHNEIDER ELECTIC	Electricity
20 SUEZ	Services
21 TF1	Media
22 THALES	Electronics
23 THOMPSON	Electronics
24 TOTAL FINA	Oil
25 VINCI	Construction
26 VIVENDI ENVIRONMENTAL	Engineering
27 VIVENDI UNIVERSAL	Media

GERMAN COMPANIES

COMPANIES	SECTORS
1 ADIDAS SALOMON	Sports Products
2 ALTANA	Pharmaceuticals
3 BASF	Chemicals
4 BAYERISCHE MOTOREN WERKE	Automobile
5 BAYER	Chemicals
6 DAIMLERCHRYSLER	Automobile
7 DEUTSCHE POST	Postal Services
8 DT LUFTHANSA	Transport
9 DT TELEKOM	Telecommunications Services

10	E.ON	Electricity
11	FRESENIUS MEDI	Medical Equipment
12	HENKEL	Chemicals
13	INFINEON TECH	Telecommunications Services
14	LINDE	Mechanical
15	MAN	Mechanical
16	SAP	Software
17	SCHERING	Pharmaceuticals
18	SIEMENS	Electronics
19	VOLKSWAGEN	Automobile

ITALIAN COMPANIES

	COMPANIES	SECTORS
1	AUTOSTRADE	Transport
2	ENEL	Electricity
3	ENI	Gas services
4	FIAT	Automobile
5	FINMECCANICA	Engineering
6	ITALGAS	Gas services
7	MEDIASET	Media
8	SAIPEM	Utilities
9	SEAT PAGINE GIALLE	Publishing
10	SNAM RETE GAS	Utilities
11	TELECOM ITALIA	Telecommunications Services
12	TIM	Telecommunications Services
13	ACEA	Electricity
14	AEM	Electricity and Gas
15	AUTOGRILL	Leisure and Restaurant
16	ALITALIA	Transport
17	BENETTON	Textile
18	BULGARI	Consumer Products
19	BUZZI UNICEM	Construction and Materials
20	DAVIDE CAMPARI - MILANO	Drink Producers
21	GRUPPO EDITORIALE L'ESPRESSO	Media and Newspapers
22	ITALCEMENTI	Construction and Materials
23	LOTTOMATICA	Leisure and Gaming Activities
24	MERLONI	Consumer Products
25	MONDADORI	Media
26	RECORDATI	Health Products
27	SNIA	Health Products
28	TOD'S	Consumer Products

UK COMPANIES

COMPANIES	SECTORS
1 ALLIED DOMECQ	Beverages
2 AMERSHAM	Health
3 ANGLO AMERICAN	Mining
4 ASSOCIATED BRITISH FOODS	Food Producers & Processors
5 ASTRAZENECA	Pharmaceuticals
6 BAA	Transport
7 BAE SYSTEMS	Aerospace & Defence
8 BG GROUP	Oil & Gas
9 BOC GROUP	Chemicals
10 BOOTS CO	General Retailers
11 BP	Oil & Gas
12 BRITISH AIRWAYS	Transport
13 BRITISH SKY BROADCASTING GROUP	Media & Photography
14 BT GROUP	Telecommunications Services
15 BUNZL	Manufacturing
16 CADBURY SCHWEPPES	Food Producers & Processors
17 CENTRICA	Utilities Other
18 COMPASS GROUP	Leisure Catering
19 DAILY MAIL & GENERAL TRUST	Media & Photography
20 DIAGEO	Beverages
21 DIXONS GROUP	General Retailers
22 EMAP	Media & Photography
23 EXEL	Transport
24 GALLAHER GROUP	Tobacco
25 GKN	Automobiles and Parts
26 GLAXOSMITHKLINE	Pharmaceuticals
27 GRANADA	Media & Photography
28 GUS	General Retailers
29 HANSON	Construction & Building Materials
30 HAYS	Staffing & Outsourcing
31 HILTON GROUP	Leisure Entertainment & Hotels
32 IMPERIAL CHEMICAL INDUSTRIES	Chemicals
33 INVENSYS	Electronic & Electrical Equipment
34 JOHNSON MATTHEY	Chemicals
35 KINGFISHER	General Retailers
36 MARKS & SPENCER GROUP	General Retailers
37 MMO2	Telecommunications Services
38 NATIONAL GRID TRANSCO	Utilities Other
39 NEXT	General Retailers
40 P & O PRINCESS CRUISES	Leisure Entertainment & Hotels
41 PEARSON	Media & Photography
42 RECKITT BENCKISER	Personal Care & Household Products
43 RENTOKIL INITIAL	Building maintenance
44 REUTERS GROUP	Media & Photography
45 REXAM	Manufacturing

46	ROLLS-ROYCE	Aerospace & Defence
47	SABMILLER	Beverages
48	SAFEWAY	Food & Drug Retailers
49	SAGE GROUP	Software & Computer Services
50	SAINSBURY (J)	Food & Drug Retailers
51	SCOTTISH & NEWCASTLE	Beverages
52	SCOTTISH & SOUTHERN ENERGY	Electricity
53	SCOTTISH POWER	Electricity
54	SEVERN TRENT	Utilities Other
55	SHIRE PHARMACEUTICALS GROUP	Pharmaceuticals
56	SIX CONTINENTS	Leisure Entertainment & Hotels
57	SMITH & NEPHEW	Health
58	SMITHS GROUP	Aerospace & Defence
59	TESCO	Food & Drug Retailers
60	TOMKINS	Engineering & Machinery
61	UNITED UTILITIES	Utilities Other
62	VODAFONE GROUP	Telecommunications Services
63	WHITBREAD	Leisure Entertainment & Hotels
64	WOLSELEY	Construction & Building Materials
65	WPP GROUP	Media & Photography

APPENDIX B — RESULTS

TABLE B1 — FRANCE

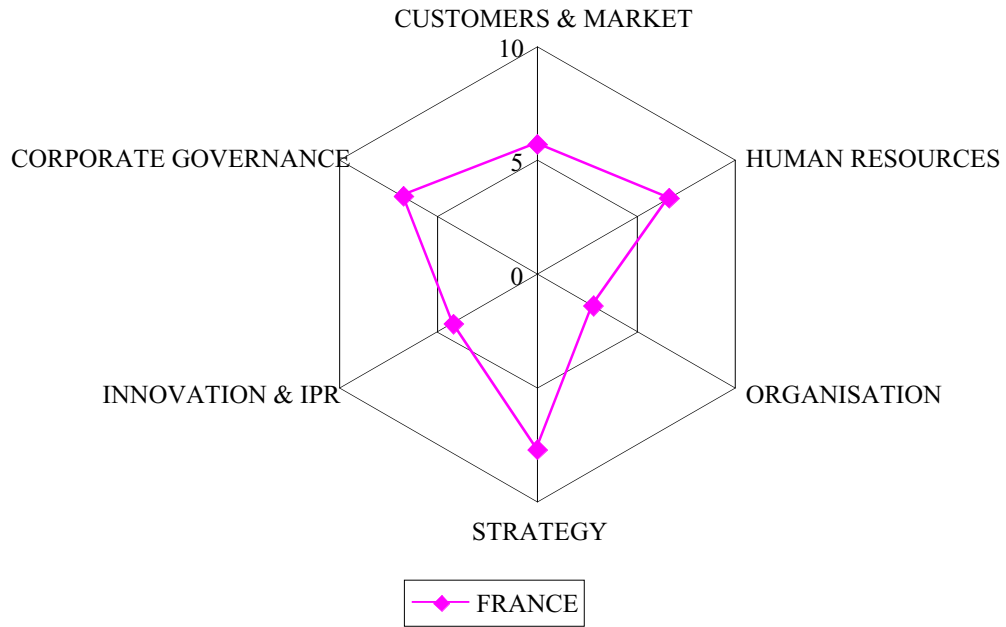


TABLE B2 — GERMANY

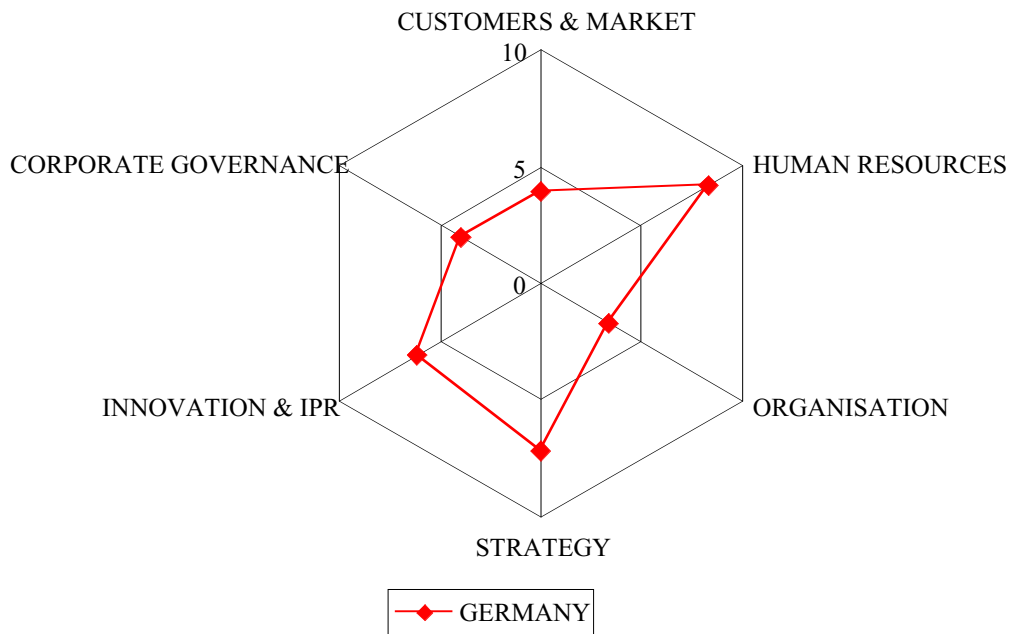


TABLE B3 — ITALY

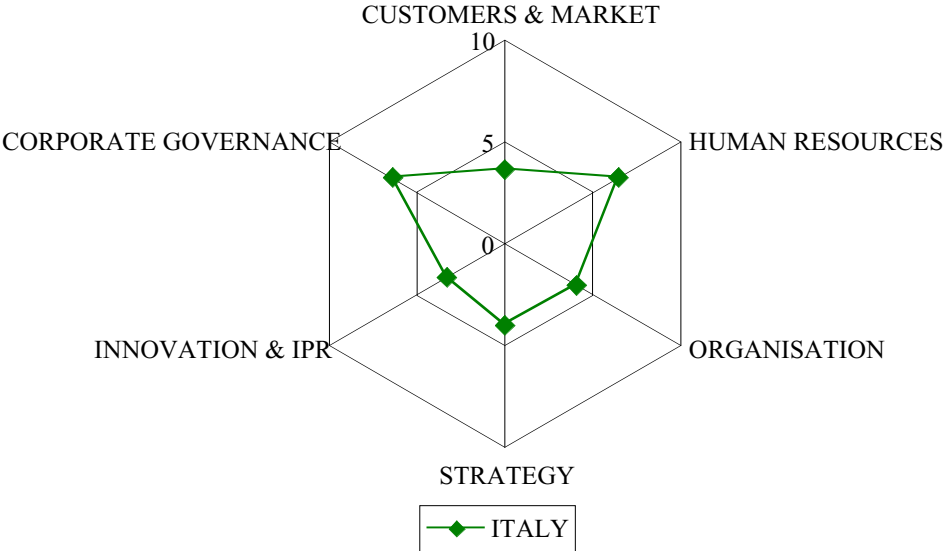


TABLE B4 — UK

