

VOORBURG GROUP ON SERVICE STATISTICS

18th Meeting

Tokyo, 6-10 October, 2003

Statistical information on intangibles

Magali Demotes-Mainard, INSEE, France
magali.demotes-mainard@insee.fr

Session: Information Society Statistics

ABSTRACT

Intangibles can be reported in very many different ways. On a microeconomic level, for example, the question often arises of how to value patents, how to determine the value of businesses in the event of mergers and take-overs, as well as recommendations by consultants on levers in terms of expertise, management and organisation. On a macro-economic level, statistical surveys are conducted independently of each other on just about all aspects relating to companies' intangible assets.

This diversity of approaches gives the impression that, as far as statistical knowledge of intangibles is concerned, the situation is still very much experimental, with the players all looking at the question from their own point of view. What appears to be missing is a global overview drawing on all the different methods, in order to develop a proper reporting system.

*“Treating intangibles as services
obscures not only the real nature of
intangibles but also that of services.”
P. Hill*

The question of measuring intangible assets is not new. Although national accountants raised it specifically for the revision of the SNA in the late Eighties, the ground had already been prepared by theoretical reflection on the matter. But statisticians now have to deal with the problem (as do corporate accountants) on an urgent basis, probably on account of the development, now or in the future, of markets for certain forms of “durable” intangibles: the “merchandising” of information is a typical example. In more general terms, it could be suggested that the novelty of the “new economy” hinges on the fact that many things that belonged to the “traditional economy” based on production for its own sake or non-trading sectors have now become (everyday) market products.

Of all the areas associated with quantitative reporting for the “information society”, that of statistical knowledge of intangibles within businesses appears to be one of the main areas for future years. In fact, references to factors explaining the development of companies and macro-economic progress which cannot be reduced to tangible capital are countless. Nevertheless, and without mentioning the difficulties associated with measurement, there is apparently no operational framework capable of collating information in relation to intangibles.

The scope of intangibles

First of all, what are intangibles? There is often a temptation to give a “hollow” definition. Thus G.V. Smith and R. L. Parr¹ defined intangible assets as “all the elements of a business enterprise that exist after monetary and tangible assets are identified. They are elements, after working capital and fixed assets, that make the business work and contribute to the earning power of the enterprise”.

Essentially, the same expression, “intangible”, actually covers two things that are conceptually different. Firstly there are intangible goods, which Peter Hill puts against services, in as much as he confers on the latter term a meaning that is narrower but also stricter than used in statistical classifications [4]. But there are also intangibles that are to some extent “what is left when everything else has been analysed”. The difference between these two notions stems from the fact that production processes for intangible goods can be analysed using the same system as that used for tangible goods, which is not at all the case for the other type of intangibles.

It is probably through understanding the term “intangibles” only in the second way that one could conclude, as do some economists, that our analysis charts need to be modified in order to take proper account of intangibles. Thus Charles Goldfinger [3]: “For statisticians, focusing on intangibles implies a shift away from macroeconomic aggregates toward microeconomic processes and transactions. The magnitude of the necessary conceptual revolution is comparable to the shift from Newtonian to quantum physics.” Without being quite so extreme, Christian Pierrat [8] considers that it is necessary to envisage a slightly more complex production function than the traditional system because part of the intangible assets are not only used in the production process, but also developed in the course of this process (capitalisation of experience).

For all that, this does not mean that reporting “intangible goods” is without its own difficulties, if only because the boundary between these two main types of intangibles is fuzzy, and in any case changing with time. But the importance of clarifying what is meant by the term “intangibles” is clear.

The purpose of this paper is to try to establish what route can be followed to allow the statistical evaluation of intangibles (without *a priori* restricting ourselves to either of the two types), by looking at the

¹ Gordon V. Smith, Russel L. Parr (1989), Evaluation of intellectual property and intangible assets, Ed. John Wiley and Sons

matter from the perspective of business statistics. For this reason, we shall concentrate essentially on the question of intangible assets: in fact, it is actually because intangible goods are of value to businesses in the longer term that it is considered important to identify them. We shall not deal with the macro-economic or socio-economic analysis, which excludes the issue of "human capital theories" on their most general level, where it is the individual himself who invests in his productive capacity.

It is therefore a question of identifying what, for a business, has a lasting economic value and is not a tangible good, or cannot be reduced to a tangible good. It is after dealing with this question of identification that the question of measurement arises, followed by the question of deciding whether or not an asset should be registered in the accounts, whether company accounts or national accounts. This paper does not cover this last issue.

Intangible assets do not actually have specific characteristics that would make them radically different from tangible assets. But they pile on problems of identification, compounded in particular by the absence of any physical support:

- the absence of material wear means that the "life-span" of these assets can only be based on external elements and thus it is largely indeterminate;
- they are often difficult to isolate, or they cannot be separated from tangible assets, so that an element-by-element analysis often makes very little sense;
- the very scope of these assets is somewhat subjective: in particular, there are probably mode effects which lead to certain aspects being overvalued at times;
- it is sometimes difficult to distinguish if the business itself owns the asset or the right of use for the same: this is often decided on the basis of terms of payment (a single payment being compared to a purchase, periodic payments to a lease), which is not satisfactory on a conceptual level.

But furthermore, intangible assets are often of a unique or very specific nature, which is less commonly the case for tangible goods. The virtually unique nature of intangible assets thus leads to major uncertainty regarding future revenue, and more generally a very uncertain market, or even no market at all: it often then becomes difficult to place a value on them.

In effect, intangibles are rather like the invisible man: known to us only by his bandages (we can then behave with him as with anyone else, except the packaging with which we are dealing is relatively circumstantial) or by the traces left by his body on cushions (we have access not to him but to his actions).

Statistics for services and statistics for intangibles

Why are service statisticians interested in measuring intangibles? The quotation by Peter Hill at the start of this document would refute the reply that considers services to be similar to intangibles. What is special about the provision of services, as a production activity, is the simultaneous co-production involving a provider and a user. In this respect, it differs from the production process for a good, even where this is intangible.

Classifications of activities and products, however, include under the heading of services both the provisions of services (in the strict sense) and the production of intangible goods: both types of activity in fact have the common characteristic of making technical or intellectual expertise available to a client on a temporary basis.

Therefore, if an intangible good is produced and put on the market, this results from a service activity, and is therefore covered by the reporting methods used in this field.

But the role of intangibles which can be monitored in terms of production for others is relatively limited: considering only this would be to have a very restrictive vision of intangibles. The link between intangibles and services also involves the use of intangible capital by service activities: the special attention paid to monitoring such use is due to the fact that the role of such assets is considered more important in the tertiary sector than in the manufacturing sector. But, apart from the fact that there is probably no reliable measurement available, account would have to be taken of an intrinsic difference in

capital intensity, equipment being essential to produce tangible goods. In any case, the observation has to be qualified for the service activities as well as for the industrial sector.

And in any event, this would be only to confirm or invalidate our intuition, the reporting of intangibles is certainly no less necessary for manufacturing than for services.

Different approaches to intangibles

According to the context, one may be tempted to approach intangibles in a particular way. Each approach involves the definition not only of the scope, but also of a specific typology.

To illustrate how a different approach can lead to the final reporting of different things, we can take the example of a research programme. When a business develops such a programme, it seems clear that it is making an investment which cannot be reduced to any tangible components resulting from this programme. But, without even looking at the question of value, what this investment actually consists of will be different depending on the perspective from which it is considered²:

- for the manager, the research programme is a series of expenses, incurred in order to increase turnover in the future: he sees the programme as an expense to be written off or spread out over the period in which revenue is expected (capital investment approach);
- the creditor is mindful of the value that can be mobilised on the market, to secure the debt, i.e. the value of the patent (actual or potential) resulting from the research programme (asset approach);
- the investor weighs up the profit expected from the implementation of the research programme (firm value approach).

In each approach, it is to some extent recognised that the research programme constitutes an asset for the business, but focusing on a different concept. For tangible goods, the various approaches can be reconciled objectively, so that the question comes down to the problem of valuation. In the case of intangibles, the object itself appears to be different depending on the approach taken.

At the statistical reporting stage, one is not obliged to reconcile the various approaches: the decision may be taken to study them separately and to define a scope for each of them. The scope for intangible assets is wider for the investor than for the manager or creditor. For the last two, the scope is only the same to a limited extent: the creditor is interested in the legal position, whilst the manager is concerned only with the identified expenditures.

The manager's point of view: monitoring investments

The first point of view, that of the manager, is basically quite different from the other two in as much as it in fact deals less with the assets in themselves than with the investments³. In this context, intangibles are generally conceived to cover expenses other than the purchase of capital equipment, from which a business expects a lasting outcome. It is, for example, possible to identify five areas which correspond to such expenditures:

- research and development
- trading and marketing
- human resources and training
- organisation and information systems
- production systems and processes.

This approach has the advantage of relative simplicity, at least in theory. Statistical reporting in fact involves a sort of functional analysis of business expenditure. It is also necessary to define precise boundaries for these functions, i.e. to construct the equivalent of the Frascati or Canberra manual for matters extending beyond research and development and science and technology. In fact, it is certainly not enough to identify sales and marketing investments with advertising expenses alone, and investment in human resources with training expenses.

² This typology was taken from Christian Pierrat [8]

³ Investments are not necessarily identified here with the fixed assets in the sense of the accounting system.

A major limitation of this expense approach is however than assets obtained free of charge or built up gradually without it being possible to allocate any financial outlay to them, can be difficult to take into account.

It can also be noted that such an approach actually establishes a clear distinction between intangible assets identified by the corresponding expenditure and (any) intangible assets where the production of the same is the business's actual aim (originals produced by intellectual activity).

The creditor's point of view: "measuring the price of security"

The identification and evaluation of an asset by the creditor are based on two criteria: separability and the level of legal protection. The easier it is to isolate the asset and the more established the right to the same, the greater the extent to which it will be recognised and valued. From this second point of view, we are thus led to favour a typology of intangible assets developed on the basis of these two criteria.

The criterion of separability would for example lead to the differentiation of assets according to their nature as follows [6]:

- separable intangible assets, which may thus be rented, sold or exchanged as such and independently of any other elements (e.g. an original audio-visual recording, a patent, lease rights);
- intangible assets associated with a tangible asset (e.g. software incorporated in a machine, expertise associated with a piece of equipment);
- comprehensive intangible assets, which concentrate the value of several inseparable intangible elements (for example a trade mark, which represents consumers' vision of the products concerned), but which may be transferred;
- intangible assets which cannot be recorded or transferred separately, which are the remainder and thus may be identified to the "goodwill".

Legal protection can only be associated with assets that can be isolated. It is possible to identify:

- intellectual property: trade secrets, patents, copyrights, trademarks, computer software, mask works, rights of publicity, etc.;
- rights associated with contracts made with other businesses, individuals or the authorities (contracts to receive goods/services, contracts to provide goods/services).

Although the legal protection criterion has the merit of objectivity, different regulations relating to intellectual property rights mean that the scope of assets that may benefit from this protection can vary from one country to another (and possibly in time).

Some typologies use these two criteria (separability, legal protection) whenever it is a question of promoting the recording of intangible assets in accounting systems. Thus, for example, the typology proposed by Christian Pierrat [8]:

- rights (rights of ownership, regulatory or legal rights, contractual rights) and virtual rights (expertise, trade secrets, processes...);
- intangible assets that can be materialised: not defined *a priori* by a legal act, but which may be protected and which can be passed on by means of an individual transfer;
- useable intangible assets: elements over which the business has no legal claim but which can be identified, the use of which may generate revenue (client files, distribution networks, etc.);
- structures associated with the processes and networks used by the business but not constituting an identifiable asset as such or an asset that can be separated from other assets (information systems, business networks, etc.);
- residual intangible values.

It is important to point out that, from this point of view, the legal device that recognises the existence of an asset, if any, replaces this asset and itself becomes the intangible asset: to take the comparison with a real estate to the extreme, this would amount to accounting for the certificate of ownership as an asset rather than for the building itself [5].

Furthermore, the creditor, who wishes to establish the possibility of resale, will also take account of a third criterion: the existence of efficient markets which make it possible to determine a potential price for the assets. Now, as has been said, the market for intangible assets is rarely efficient: transactions are isolated and rare on account of the fact that such assets are very often special or unique.

From this second point of view, the statistician can probably hope to do no better than the accountant in terms of identifying and measuring intangible assets. At present, he therefore has to confront the wide diversity of individual practices in the business world. Furthermore, the asset-based approach is also restricted by the fact that the legal protection and separability criteria determine to great extent the value allocated to the asset, to the detriment of an economic efficiency assessment. Accounts theoreticians are obviously aware of these two difficulties, which they are trying to remedy.

The investor's point of view: valuing the firm

The investor's point of view endeavours to overcome the constraints of the previous definitions, namely the possibility of identifying expenditure or attributing an actual asset value.

In fact, for many analysts, the essential value of a business lies other than in things that can be listed and/or evaluated on a market. What has to be taken into account, is for example the quality of the business's workforce, its culture, its acquired knowledge, its customer and supplier networks. It is with this in mind that approaches have been developed that aim to describe the "intellectual capital" of the business. Leif Edvinsson, the main promoter of this approach, defined intellectual capital as the sum of human capital and structural capital, the latter being defined as "all that is left when the staff has gone home"⁴.

In effect, it appears that the distinction is made more generally using three elements: human capital, structural or organisational capital, customer and network capital.

A number of studies on the reporting of intellectual capital are in fact being carried out in parallel with those exploring the ways in which to extend the scope of fixed assets registered on a business's balance sheet. It is not therefore a question of trying to value intellectual capital, to add it to other elements of the assets, but to define a series of indicators, which can provide relevant information on a business. This approach was developed firstly to set up internal information systems for businesses or for investors. Attempts have been witnessed to transfer it more systematically to a statistical reporting level.

Thus the European project entitled "Statistical indicators for the new Economy" (SINE) [9] put forward a list of 29 groups of indicators. If we disregard social and "economic" indicators (the latter tending to cover outcome), this leaves about a dozen indicators describing a business's internal processes, 8 of which relate directly to technology, and 4 which do not (knowledge capital, performance, inter-business alliances, new organisational structures): the issues identified by these groups of indicators clearly cover the notion of intangible capital.

Groups of indicators identified by SINE

| | |
|----------------------------|--|
| In the field of technology | <ul style="list-style-type: none"> - ICT infrastructure - Internet infrastructure - digital technology - virtual technology - multimedia technology - Internet users - Internet penetration |
| In the field of production | <ul style="list-style-type: none"> - production and ICT exchange indicators - knowledge capital indicators |

⁴ Visualizing Intellectual Capital, in Supplement to Skandias's 1994 annual report

| | |
|--|---|
| | <ul style="list-style-type: none"> - production performance indicators - inter-business alliance indicators - new organisational method indicators |
|--|---|

The logic and themes of this third approach appear finally to be quite clearly identified. This leaves the vast field of a precise definition of the indicators for which statisticians would certainly benefit from seeking inspiration from studies relating to businesses' corporate reports.

For the statistician, where the attempt to evaluate certain forms of intangible assets sometimes seems to have reached a deadlock, the logic of defining indicators looks very attractive: there are in fact other ways of quantitatively and objectively describing a phenomenon than translating it into monetary terms. But this logic calls for other essential aspects.

The first stumbling block is confusing what we want to monitor with what we can monitor, at the risk of making a mistake about what is important. Thus it is often easier to use indicators to measure changes in a situation in relation to a previous period than to describe an absolute situation, which means being able to refer to an external norm.

Furthermore, if we monitor actions taken in order to increase the value of a business's intellectual capital, care must be taken to distinguish between what is done (input) and the direct result of the action (output): for example, in relation to the skills of the workforce, concentrating on training intensity indicators overlooks the effectiveness of the training. But care must also be taken to differentiate between "output" and "outcome". This is a not negligible risk. Starting from the idea that asset measurement is important in order to measure performance, there is sometimes the temptation to measure or record the asset on the basis of its performance: this clouds the issue.

The indicator logic therefore has its own measurement problems. However, it offers a vast field of experience to the statistician who is trying to observe intangibles.

In effect, the various aspects of intellectual capital have already been the subject of statistical monitoring exercises in a number of countries. By way of example (this list is not intended to be exhaustive), mention can be made of the following⁵:

- "National Employer Survey" (United States), "Workplace Industrial/Employee Relations Survey" (United Kingdom), "Changements Organisationnels et Informatisation" [*Organisational Changes and Computerisation*] (France), which observe employment organisations on a business level;
- professional training surveys: International Adult Literacy Survey (OECD), European Labour Force Survey (Eurostat), Continuing Vocational Training Survey;
- the Canadian knowledge management survey;
- the European survey of inter-business relations.

The purpose of each of these surveys was, at least to some extent, to identify the internal characteristics of a business that might explain their individual performance. However, generally speaking, these studies do not attempt to cover the explicit issue of monitoring businesses' intangible assets.

Intangibles and innovation

It is striking that economic (or at least, macro-economic) statistical considerations relating to intangible assets generally lead on to the theme of innovation: thus the conclusions of the OECD symposium in June 1999 on measuring intellectual capital appear essentially to have been handled using this organisation's "Science and Technology" approach.

⁵ This list is based partly on the works referred to in [9]

Intangibles and innovation are, however, two different notions: an intangible asset is a potential value reserve, innovation is the result of the process which has resulted in something being changed, whether this is a product or a process. The two ideas are certainly not alien to each other:

- the development of an innovative project certainly supposes some degree of “intellectual capital” as defined above,
- on a macroeconomic level at least, the success of an innovation is certainly a good indicator of the economic efficiency of this “intellectual capital”, which justifies the use of innovation indicators to “value” this capital.

The Oslo manual on measuring innovation recognises both the similarities and the differences between innovation and intangibles: apart from innovation, it refers to two “other ways of examining the changes occurring in firms which improve their productivity and their results”, one of it being intangible investment⁶ [1 § 54]. But intangibles do not go hand in hand with innovation. Actually, analysis of intangibles and analysis of innovation relate to some common issues (what factors are responsible for the efficiency of the business?), but these two approaches are different from each other, and it appears to be important to preserve the logic of them both.

For this reason, monitoring intangibles most probably involves articulation and systematisation of different experiences, in order to establish a coherent information system, rather than extending an issue such as innovation.

References:

- [1] Oslo Manual, Proposed guidelines for collecting and interpreting technological innovation data, OECD/Eurostat, 1996
- [2] Innovation, actifs immatériels et structure financière des entreprises : une question de style (aussi), Régis Coeurderoy, 6ème Conférence de l'Association Internationale de Management Stratégique, Montréal (1997)
- [3] Intangible Economy and its Implications for Statistics and Statisticians, Charles Goldfinger, International Statistical Review (1997), 65,2, pp. 191-220
- [4] Tangibles, Intangibles and Services: A new Taxonomy for the Classification of Output, Peter Hill, Conference on Service Centre Productivity and the Productivity Paradox, Ottawa (April 1997)
- [5] Intangible assets, patents and copyrights in the 1993 SNA, Peter Hill, SNA News and Notes n°6 (July 1997)
- [6] L'évaluation des immatériels : un point de vue gestionnaire, Bernard Martory, 17° Congrès de l'Association Francophone de Comptabilité, Angers (mai 1999)
- [7] Measuring Intangible Investment: main theories and concepts, Louis-Marc Ducharme, Symposium de l'OCDE sur l'investissement immatériel, (1999)

⁶ The second way is the creation and adoption of information technology

- [8] Immatériel et comptabilité, Christian Pierrat, Encyclopédie de comptabilité, contrôle de gestion et audit, Economica, Edition Bernard Colasse (2000)
- [9] SINE: Statistical Indicators for the New Economy, Eurostat, Research and Development in Statistics - EPROS, (2000)
- [10] Study on the measurement of intangible assets and associated reporting practices, prepared for the Commission of the European Community (April 2003), The University of Melbourne, University of Ferrara, NYU Stern (Stefano Zambon, Coordinator)