

Keskusteluaiheita - Discussion papers

No. 687

Anne Eronen

CLASSIFICATION OF INTANGIBLES - SOME COMMENTS

- * This paper is one of the MERITUM (Measuring intangibles to understand and improve innovation management) project reports. MERITUM is financed by the TSER Program of the European Union and the participating countries are Finland, Sweden, Norway, Denmark, France and Spain (co-ordinating partner).

Eronen, Anne, Classification of intangibles – some comments, Helsinki: ETLA, The Research Institute of the Finnish Economy, 1999, 13 pages (Discussion Papers, ISSN 0781-6847, No. 687)

ABSTRACT: The intangible terminology is widely spread. There exist numerous definitions and classifications for intangible assets, intangible investments, intangible capital and intangible phenomena. One common characteristic of most classifications is, however, the division of the intangibles into human, organisational, and customer categories.

In an organisation, the classification structures aim at assisting the management in identifying the firm specific intangibles so that these can be further developed. On the capital markets the effects of the intangibles are considered twofold. Firstly, the intangibles are taken as an explanation for the difference between market equity value and book equity value. Secondly, the comprehensive public reporting on intangibles is claimed to have a positive impact on the value of market equity.

KEYWORDS: intangibles, classification, measurement, reporting

Eronen, Anne, Aineettomien voimavarojen luokittelusta, Helsinki: ETLA, Elinkeinoelämän Tutkimuslaitos, 1999, 13 sivua (Keskusteluaiheita, ISSN 0781-6847, No. 687)

TIIVISTELMÄ: Aineettomiin voimavaroihin liittyvä terminologia on hyvin laaja-pohjainen. Kirjallisuudesta löytyy lukuisia määritelmiä ja sisältöluokitteluja niin aineettomalle varallisuudelle, aineettomille investoinneille, aineettomalle pääomalle kuin aineettomille ilmiöille. Luokitteluista on kuitenkin löydettävissä yksi yhteinen tekijä. Valtaosa ehdotuksista jakaa aineettomat voimavarat henkilöstöön, organisaatioon ja asiakkaisiin liittyviin osioihin. Eräs luokittelujen tavoitteista on helpottaa yrittäjäjohtoa määrittämään oman yrityksensä keskeiset aineettomat osa-alueet, jotta niitä voidaan edelleen kehittää.

Pääomamarkkinoilla aineettomille voimavaroille annetaan kaksi roolia. Ensinnäkin luokittelurakenteiden avulla pyritään selittämään yrityksen markkina- ja kirjanpitoarvon välistä eroa. Toisaalta katsotaan, että aineettomiin voimavaroihin liittyvän relevantin informaation julkistaminen vaikuttaa myönteisesti yrityksen markkina-arvon kehitykseen.

AVAINSANAT: aineeton pääoma, luokittelu, mittaus, raportointi

1 Yhteenveto

Aineettomille voimavaroille löytyy lukuisia luokitteluja. Nämä eroavat toisistaan lähinnä siinä, käsitelläänkö luokittelussa tasekirjauksen ehdot täyttäviä aineettomia varallisuuseriä, tuloslaskelmassa kuluiksi kirjattavia aineettomia investointeja vai aineettomia ilmiöitä, jotka vaativat yritysjohton huomiota. Näistä luokittelurakenteista löytyy kuitenkin lähes poikkeuksetta yksi yhteinen piirre. Aineettomat voimavarat sijoitetaan kolmeen pääasialliseen kategoriaan: henkilöstöön ja osaamiseen, sisäisiin rakenteisiin ja organisaatioon sekä ulkoisiin rakenteisiin ja asiakkaisiin.

Luokittelu on ensimmäinen askel aineettomien voimavarojen käsitteen ja sisällön ymmärtämiseen. Luokittelu yksin ei kuitenkaan riitä. Aineettomien voimavarojen hallinta edellyttää osaavaa johtamista sekä mittaus- ja raportointikäytäntöjen kehitystä.

Aineettomien voimavarojen mittaamisen ja johtamisen keskinäisestä tärkeydestä käydään kiivasta keskustelua. Toiset väittävät, että ilman mittaamista ei pystytä johtamaan. Toiset taas ovat sitä mieltä, että johtaminen tulee ennen mittaamista. Tosiasia lienee, että molempia tarvitaan. Osaamisen johtamista kaivataan ensimmäisessä vaiheessa, yrityksen strategisesti tärkeiden aineettomien voimavarojen etsimisessä ja määrittämisessä. Mittausmenetelmien ja tulosten raportointijärjestelmien kehitys tulee ajankohtaiseksi vasta sen jälkeen kun on tiedossa, mitä halutaan mitata. Mittausvaiheen jälkeen mukaan tulee jälleen johtaminen. Mittaristo on parhaimmillaankin vain työkalu ja apuväline, ei suinkaan itsetarkoitus. Työkalua on pystyttävä soveltamaan ja sen tuottamaa informaatiota hyödyntämään organisaation edelleen kehittämiseen.

Aineettomien voimavarojen roolia pääomamarkkinoilla on viime vuosina tutkittu varsin runsaasti. Perinteisen taloudellisen informaation merkitys yrityksen arvonmäärittämisessä on 1990-luvulla havaittu heikkenevän. Toisaalta, tutkimuksissa, joissa taloudellisen informaation oheen on lisätty tietoa aineettomista voimavaroista, myös perinteinen informaatio on saanut lisää painoarvoa. Tutkimuksiin perustuen uskotaan siis laajalti, että tiedon julkistamisella voidaan vaikuttaa pörssiyritysten arvonkehitykseen.

Mielenkiintoisia ovat myöskin Ernst & Youngin tutkimustulokset, joiden mukaan sijoittajat – tässä tapauksessa analyytikot – arvostavat aineettomista voimavaroista eniten strategian toteuttamista, johdon uskottavuutta, strategian laatua, innovatiivisuutta sekä kykyä osaavien ihmisten palkkaamiseen.

Haasteet sekä tutkimukselle että käytännölle liittyvät aineettomien voimavarojen – ennen kaikkea yrityskohtaisten aineettomien voimavarojen – rakenteiden edelleen tarkentamiseen sekä mittaus-, johtamis- ja raportointitapojen parhaiden käytäntöjen etsimiseen. Lisäksi kaivataan aktiivisempaa vuoropuhelua eri sidosryhmien välillä. Vähintäänkin kansallisen tason koordinaatio on välttämätöntä pysyvien käytäntöjen syntymiselle. Suunta tämän suhteen on kuitenkin hyvä. Siitä todistavat esimerkiksi OECD:n konferenssitoiminta ja EU:n aihealueelle myöntämä tutkimusrahoitus.

1 Introduction

There are observations that the stock market behaviour of the so called 'knowledge companies' frequently deviates from that of basic industries. There also exists some evidence supporting a positive correlation between a firm's intangibles and its share market value [Amir and Lev 1996, Lev 1997, Lev and Zarowin 1998]. Thus the 'air' between the market and book values of a firm is claimed to reveal its knowledge capital, the stock of intangibles which is not visible in traditional financial accounts, but instead taken into account on an efficiently functioning marketplace.

The ongoing efforts for establishing a general classification for the intangibles thus aim, among other things, at structuring the space between the accounting valuation and (higher) market expectations; at characterising the attributes that make a firm more valuable in public trading than is the value of its accountable assets. Another aim is, naturally, to offer the managers some frameworks for use when identifying the strategically relevant intangibles of their organisations.

The structure of this paper is as follows. Chapter 2 refers to some current classification concepts. Chapter 3 moves from structures to management, measurement and disclosure issues. Chapter 4 concludes with future challenges.

2 Some current concepts for intangibles

There are various approaches to the meaning of the intangible. The actual verbal *definitions* are quite rare. The intangibles are mainly defined through *classification*, which reveals a certain content structure.¹

The application environment is the main difference between the existing classifications. Some efforts aim at constructing intangible asset groups suitable for capitalisation on a firm's balance sheet, whereas others concentrate on intangible resources or intangible phenomena, and on the use of the classification as a management tool. If the intangibles are either *recognised* as assets or reported alongside 'official' financial statements is, however, subject to debate, which logically leads to the question of the *valuation* principles. If recognised and *accounted* as assets, the *depreciation* and *impairment* issues need to be solved.

- International Accounting Standard IAS 38 (IASC 1998) defines intangible assets as identifiable non-monetary assets without physical substance held for use in the production or supply of goods or services, for rental to others, or for administrative purposes that are (a) controlled by an enterprise as a result of past events, and (b) from which future economic benefits are expected to flow to the enterprise.
- According to Arthur Andersen (1992) intangible assets are non-physical in nature, capable of producing future economic benefits and protected legally or through a *de facto* right. For financial reporting purposes it should be possible to define the

¹ For thorough information on different types of structures see Johanson et al. (1999).

intangible asset in such a way that it is sufficiently separable to enable its valuation as an identifiable business asset. Moreover, the basis for the valuation should be defined in sufficient detail that it can be computed consistently over time.

Four most common categories of intangible assets are suggested accordingly: *Brands* include consumer goods, industrial and service brands, trademarks including name, logo, device and colour combination as well as corporate name. *Publishing rights* include magazines, book titles, mastheads, film, music and photographic libraries, TV/radio program listings, copyrights, imprints, subscriber/advertise lists and exhibition rights. *Intellectual property* includes patents, copyrights, trademarks, technology, know-how, trade secrets, product design/style, databases, software as well as drawings and blueprints. *Licences* include TV/radio franchises and licences, airline routes and slots, production rights, import quotas, operating licences (e.g. transport), mineral exploitation, franchise operations, distribution rights, licences of the rights (e.g. pharmaceutical) and non-complete agreements

- The Intangible Research Center of the Leonard N. Stern School of Business defines and classifies the intangibles in conformity with GAAP². According to the *broad definition* intangibles are nonphysical sources of probable future economic benefits to an entity or alternatively all the elements of a business enterprise that exist in addition to monetary and tangible assets. *Narrow definition* defines the intangibles as nonphysical sources of probable future economic benefits to an entity that have been acquired in an exchange or developed internally from identifiable cost, have a finite life, have market value apart from the entity, and are owned or controlled by the entity.

These two definitions result in six classes of intangibles: *General*, which means goodwill and others, e.g. advantageous relationships with the government. *Brand Equity* meaning the capacity of brands to sustain and encourage economic demand and other market capabilities, such as advertising. *Intellectual Capital* including trade secrets, internally developed computer software, drawings and other proprietary technology as well as intellectual property (patents, trade names, trademarks, copyrights) which exist because of a complex body of law. *Structural Capital* including assembled workforce (the relationship between the business and its employees, training and employee contracts), leadership, organisational capacity for sellable innovation, organisational learning capacity, leaseholds, franchises, licenses and mineral rights. *Customer Equity*, which means customer lists and other customer-based intangibles, customer loyalty and satisfaction as well as distribution relationships and agreement. *Supplier Relations* including equity interest in suppliers, contracts and supplier reliability

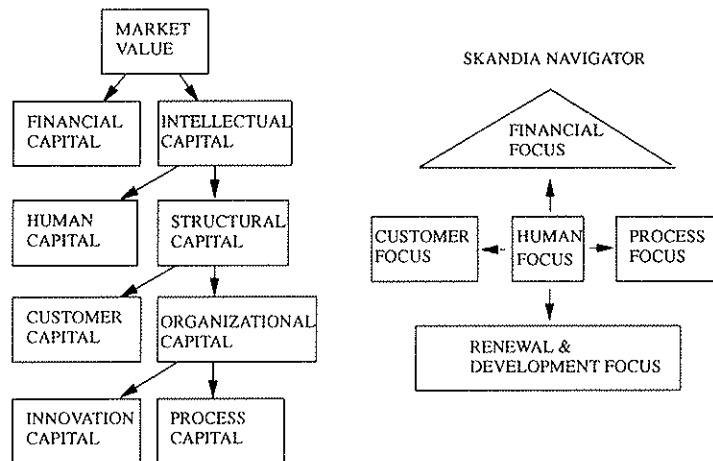
- Brooking (1996) defines the intangibles through another four categories: *Human-centred assets* including education, skills, job related expertise as well as personal and job related attributes. Human-centred assets thus comprise the collective expertise, creative capability, leadership as well as entrepreneurial and managerial skills embodied by the employees of the organisation. It also includes psychometric data and indicators on how individuals may perform in given situations such as

² GAAP = Generally Accepted Accounting Principles

high stress. *Intellectual property assets* include know-how, copyright, patent, semiconductor topography rights, and various design rights. They also include trade- and service marks. *Infrastructure assets* include among others information systems, management infrastructure, financial management methods, corporate culture, forecasting methods and risk analysis. In other words, these are the technologies, methodologies and processes which make up the way the organisation works. *Market assets* refer to name recognition, repeat business, branding as well as customer and investor relations thus defining the potential of an organisation in terms of market-related intangibles.

- Sveiby (1997) classifies the intangible assets defined as a stock price premium³ in three groups: *External structure*, such as brands, customer and supplier relations. *Internal structure* meaning the organisation: the management, legal structure, manual systems, attitudes, R&D and software. *Individual competence* includes education and experience.
- Probably the most popularised structure for intangibles (figure 1) owes to the Swedish assurance group Skandia, and its former Director of Intellectual Capital, Leif Edvinsson.⁴

Figure 1 Intellectual Capital and Skandia Navigator



Source: Skandia (1994)

Skandia's *Intellectual Capital (IC)*, defined as the difference between the firm's market and book values, is currently divided into three subsections: human capital,

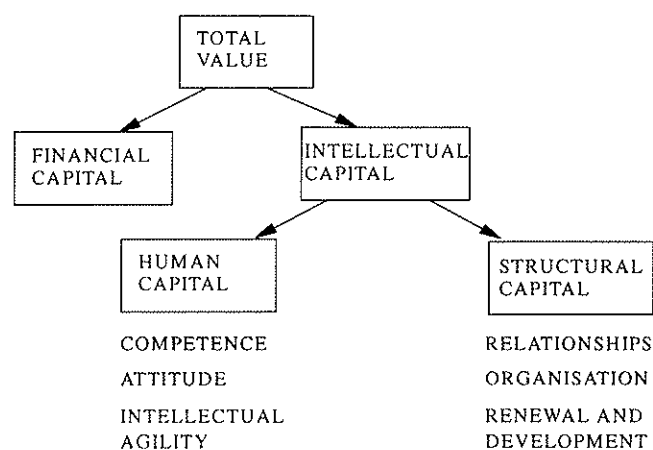
³ The difference between the firm's market and book values.

⁴ Although, the work of Skandia is partly based on earlier concepts, such as Sveiby (1989)

structural or organisational capital, and customer capital. *Human capital* refers to the individual knowledge of the employees, which leaves the company at 4 p.m. *Structural capital* includes the company culture, information channels, and data-bases, among others. Structural capital is usually owned or directly controlled by the company, and thus continues working after the employees are gone. *Customer capital* aims at capturing the value of loyal customers and external networks.

- Roos et al. (1997) still argue in favour of the twofold classification into *human* and *structural* capital, initially suggested by Skandia (1994) as in figure 1. They suggest a further division of these two groups into three subcategories. According to their structure, human capital includes *competence* based on knowledge and skills, *attitude* based on motivation, behaviour and conduct, and *intellectual agility* based on innovation, imitation, adaptation and packaging. Structural capital, in turn, consists of *relationships* including customers, suppliers, alliance partners, shareholders and other stakeholders, *organisation* including infrastructure, processes and culture, and *renewal and development* (figure 2).

Figure 2 Human and structural capital



Source: Roos et al (1997)

Despite a variety of efforts to date, a generally accepted structure for intangibles is still lacking. One common characteristic - although without any terminological consensus - seems to be the division of the assets into human-related, firm-internal and firm-external phenomena. Still, as Cañibano et al. (1999:11) note "...there seems to be little agreement in the literature as to what exactly intangibles are, when they should be recognised, whether or not they should be reported in the financial statements, how they should be measured, accounted for and depreciated." And further (p. 19): "Academics and standard setting bodies are currently faced with the challenge of

undertaking joint efforts towards developing an appropriate definition of intangibles and a coherent classification which are the necessary starting point for the development of a set of valuation criteria and guidelines for financial reporting of intangibles.”

3 From structures to practices: measuring, managing and reporting the intangibles

Why classify? Cañibano et al. (1999:31) verify as follows: “Failure to allocate sufficient resources to relevant intangibles may result in a loss of competitive power and a deterioration of the firm’s financial position in the long run. Therefore, managers need to be provided with an appropriate definition of intangibles and a comprehensive classification thereof.” Further (p. 30): “Failure to correctly reflect the impact of intangibles on the current and future performance of the business implies that accounting statements fail to present an unbiased (true and fair) view of the firm’s financial position. Therefore, investors are provided with non-relevant and non-comparable financial statements and will most likely not be able to assess the value of companies to make efficient resource allocation decisions.”

The classification is thus the first step to increase understanding. However, for practical purposes it is merely the first step. The value added from intangibles will not be realised until successful implementation of the management and reporting approach. As it is, practically every classification construction leads to some kind of reporting approach. Examples are the IC-reporting framework Skandia Navigator⁵, the Intellectual Assets Monitor summarising the external, internal, and competence indicators from Sveiby’s intangible assets⁶, or the aggregated IC-index by Roos et al. (1997).

Measurement approaches

The measures are generally classified as being monetary or non-monetary. In the group of monetary measures, the intangibles may have value as an asset or they may be regarded either as an investment or as a cost.

Generally, the financial accounting principles differ across countries and areas when it comes to the asset recognition of the intangibles. Some accounting rules allow the capitalisation of e.g. the R&D expenditures, whereas others treat them solely as costs.⁷

On the human capital side, the debate concerning the asset recognition issues started in the 1960’s, as an Ph.D.-candidate noticed that the firm’s financial statement does not reflect the real value of the firm, since important assets, such as human capital, are missing from the balance sheet. The following Human Resource Accounting (HRA) movement concentrated on finding value for company’s personnel, and even on bringing these values to the official financial information [Flamholtz 1995]. This was, however, no great success.

⁵ For detailed information see Edvinsson & Malone (1997)

⁶ For detailed information see Sveiby (1997)

⁷ For detailed information see Cañibano et al. (1999)

The failure was due to many practical as well as theoretical problems, which were encountered in defining the proper balance sheet value for human capital. Firstly, the control aspect was subject to debate. It is a fact that the firm does not own its employees. The question was, does the firm possess sufficient control over its employees in order to be able to treat them as assets. Secondly, the valuation principles for human assets have been subject to a long-lasting debate. During the past 30 years practically every alternative has been proposed [see. eg. Gleeson 1975, Sackmann et al. 1989, Scarpello & Theeke 1989]. A proper solution is, however, still lacking. Thirdly, ethical issues were no minor detail. Generally, accounting for the worth of the employees beside the machines was not universally considered as good practice. To date, the human factor is not included in official balance sheet information. There have been some efforts for the construction of a 'shadow balance sheet' including the information missing from the real one, again with no great success. Later on, as the general discussion framework has bent from the human resource only towards the intangibles at large, the problem setting has largely remained the same. Recognising e.g. customers or suppliers as assets bears much of the same problems as recognising the employees as assets.

Beside the efforts for the balance sheet valuation, there are numerous propositions for the detailed and informational accounting for the intangibles-related investments and costs. One of these is the human resource profit and loss account, which aims at informing about the detailed HR-related costs and investments and their contribution to the firm's income.⁸

Both the value and investment calculation seeks strict financial figures. It seems, however, that the measurement issues have grown to be much more complicated than finding out the firm's yearly expenditure on R&D or education and training. The question that evidently follows is – so what? What has the firm accomplished by investing this money? There is a growing need for more result-oriented measurement schemata to reveal the outcome and the implications about the use of certain input.

As a result the numerical information is widely complemented with non-financial measurements. As the long discussion around the valuation principles for the human resources indicates, some things just do not convert themselves into dollars or euros. It is, however, possible to establish cause and effect –chains with complementing the financial information with the non-financials: ratios and indicators. The Balanced Scorecard (BSC) by Kaplan and Norton (1996) is a good example of the building of relations between financial objectives and non-financial performance measures.

Some practitioners say that you only can manage something you can measure. Others say the measurement is secondary, one should manage first. In a way both opinions are right. The measures actually take a place between two phases of management. The first management aspect is, one has to know *what exactly to measure*. The second is, after having dealt with finding the right indicators for the right things, one has to be able to *cope with the results*. Therefore, it is important to bear in mind that the measures are just a means to an end, not the end itself. The desperate search for right re-

⁸ For theoretical examples see Ahonen (1998), Eronen (1997, 1998), Gröjer (1990, 1993), Gröjer & Johanson (1996). For disclosures see the human resource reports of e.g. KPMG and Nokian Tyres.

porting standards for intangibles easily leads to overemphasis of the numbers. The measurement system is a tool, which only gets a life in the hands of a clever user.

Intangibles and company valuation - disclosure issues

Measuring and managing – which order ever anyone will choose – are essential for a firm to be able to successfully control, maintain and further develop its intangibles. The proponents of the IC-accounting go still one step further. It is claimed that the informational disclosure of intangibles has a positive impact on the market value of a firm.

Empirical evidence from western stock exchanges actually reveals an increasing trend in market-to-book ratios, the market value of stocks divided by the book value of equity of the listed companies [Eronen 1999, Johanson 1996, Lev 1997]. Some existing evidence also points to the declining value relevance of the financial statements on company valuation [Lev & Zarowin 1998]. Results by Amir and Lev (1996) reveal an increase in the value relevance of the financial figures in a wireless communication industry after these figures are complemented with non-financial information, such as the market penetration. Cañibano et al. (1999) shows a positive correlation between the firm's investments in R&D and stock price. Eronen (1999) investigated the value relevance of the disclosed human resource indicators using Finnish firm data. In this case the results indicated that the disclosure itself does not seem to be an issue.

The fact that the market capitalisation differs from the accounting value of a firm nevertheless indicates that the investors are considering additional sources of wealth than the balance sheet value of the fixed assets while making investment decisions.

The logic behind the company valuation is simple. The market value of a firm is the number of its shares multiplied by the share price. The share price, in turn, depicts the market's expectations attached to the firm's growth and profitability. The size of the market value is thus characterised by two components. Firstly, there is *the required rate of return*, which adjusts the returns to the risk level of a firm's stock. The capital asset pricing (CAPM) model represents one possibility to calculate the required return rate. Secondly, there are (expected) returns, or, *the future cash flow* containing (the investors beliefs regarding) the firm's income.

The fact that the current accounting rules only cover a minor fragment of the relevant intangibles-related information evidently affects the company valuation. Intangibles that do not appear in the balance sheet have a double impact on the firm's financial figures. They adversely affect both the book value of equity and the result: the book value is lower (no capitalisation values for intangibles) and the result is lower (intangibles are regarded as costs occurred during the accounting period).

The investors seek for growth and profitability. As it is under current accounting practices, intangibles are supposed to have value, but their value stems from investor's estimations. One of the reasons behind the promoted disclosure of additional, intangibles-related information is to give the investors a reliable picture of the firm's future performance. In this way the market gets to know more than it has to guess, which should have a further impact on the *expected* returns.

4 Challenges – the step forward

One target of the classification of intangibles is to structure the space between the accounting valuation and the (higher) market valuation of a firm. This is due to the fact that currently only a minor fragment of intangibles is recognised as assets; the balance sheet normally includes only the financial and fixed (tangible) assets. If the market continuously values the firm higher than the value of its tangibles, it is claimed the higher valuation is based mainly on the intangible wealth. This is the first thesis of the IC-school.

In addition to structuring the market-to-book difference into intangible parts, the proponents of the IC-thinking claim that a comprehensive public reporting on intangibles does have a favourable effect on the firm's market value. The recent research actually reveals some evidence on the subject. In some cases, crucial information about company-relevant intangibles does have a reflection at the stock prices as well.

The problem attached to both of these claims is that the intangibles do not exist independently. Value is created through complex interaction between tangible and intangible factors, and all these factors are highly firm specific.

One of the challenges in the future is to try to recognise these firm specific intangibles and their effects both inside and outside the organisation. The task of identifying the relevant intangibles inside an organisation is a management responsibility. This could well be made easier through structural frameworks of intangibles already present in the literature. Widely used examples include the Balanced Scorecard and the Skandia Navigator.

The impact of the different types of intangibles outside an organisation is a research challenge. Researchers have a possibility to tackle the issues on an aggregate level, not having to deal with the day-to-day management challenges. Researches are able to search for the best practices, and distribute this information for wider use.

When it comes to intangibles and capital markets, qualitative research is needed as well. The existing large databases do contain information on past performance and actions. Beside the quantitative proof, it would, however, be interesting to look at how the investors see the firm. The first step might well be to approach the analysts, as reported in Ernst & Young (1999). In this survey the five non-financial metrics most highly valued by the investors were in descending order strategy execution, management credibility, quality of strategy, innovativeness and ability to attract talented people.

One of the problems concerning the capital markets is probably the lack of standards. The investors do not necessarily know what information is genuinely relevant and reliable, and without comparison and background information they do not necessarily know if the given facts are good or bad. One of the general future challenges is thus to train the different stakeholders to search for and use the intangibles-related information.

Initiatives taken by global institutions such as the OECD⁹ to expand the basis for discussion and to enhance the research and development concerning managing, measuring, reporting and controlling the intangibles is a necessary step for wider consensus. Although the 'hard work' is mainly a responsibility of a smaller entity, such as a firm or an academic institute, it is difficult to achieve sustainable results without aggregate level co-ordination.

⁹ An International Symposium "Measuring and Reporting Intellectual Capital: Experience, Issues, and Prospects" was held in Amsterdam 9.-11.6.1999. For more information see <http://www.oecd.org/dsti/sti/industry/indcomp/act/Ams-conf/symposium.htm>

5 References

- Ahonen, G. (1998), "*Henkilöstötilinpäätös – yrityksen ikkuna menestykselliseen tulevaisuuteen*" (Human Resource Accounts – firm's window to the prosperous future), Kauppakaari Oyj, Helsinki
- Amir, E. ja B. Lev (1997), "Value-relevance of nonfinancial information: The wireless communications industry", *Journal of Accounting and Economics* 22, pp. 3-30
- Arthur Andersen (1992), "*The Valuation of Intangible Assets*", Special Report No P254, The Economist Intelligence Unit, London
- Brooking, A. (1997), "*Intellectual Capital – Core Asset for the Third Millennium Enterprise*", 2nd ed., International Thomson Business Press, UK
- Cañibano, L., García-Ayuso, M. and P. Sánchez (1999), "*The value relevance and managerial implications of intangibles: A literature review*", Background paper prepared for the OECD symposium "Measuring and Reporting Intellectual Capital: Experience, Issues, and Prospects" held in Amsterdam in June
- Edvinsson, L. ja M. S. Malone (1997), "*Intellectual capital – the proven way to establish your company's real value by measuring its hidden brainpower*", Judy Piatkus (Publishers) Ltd., London
- Ernst & Young (1999), "*Measures that matter*", executive summary
- Eronen, A. (1997), "*Henkilöstön osaaminen yrityksen taseeseen?*" (Human Capital into the company's balance sheet?), ETLA B 133, Helsinki
- Eronen, A. (1998), "*Yrityksen henkisen pääoman arviointi – malleja ja tunnuslukuja*" (Human Capital valuation – models and indicators), ETLA Discussion papers no. 626, Helsinki
- Eronen, A. (1999), "*Henkilöstöinformaatio ja yrityksen arvo*" (Human resource information and the value of a firm), ETLA B 149, Helsinki
- Flamholtz, E. G. (1985), "*Human Resource Accounting: Advances in Concepts, Methods, and Applications*", Second Edition, Jossey-Bass Inc. Publishers, San Francisco
- Gleeson, J. (1975), "Accounting for Human Resources", *The Australian Accountant*, March, ss. 82-88
- Goldfinger, C. (1997), "*Understanding and measuring the intangible economy: Current status and suggestions for further research*", CIRET- conference, August 1, Helsinki
- Gröjer, J-E. (1991), "*Det personalekonomiska bokslutet*", Labora Press, Stockholm
- Gröjer, J-E. (1993), "*Redovisa anställda på balansräkningen!*", Labora Press, Stockholm
- Gröjer, J-E. ja U. Johanson (1996), "*Human Resource Costing and Accounting*", Second Edition, The Joint Industrial Safety Council, Sweden
- International Accounting Standards Committee (IASC) (1998), "*International Accounting Standard IAS:38; intangible assets*", London
- Johanson, U. (1996), "*Increasing the Transparency of Investments in Intangibles*", presented on the conference "Changing workplace strategies: Achieving better outcomes for enterprises, workers and society", Ottawa
- Johanson, U., G. Eklöv, M. Holmgren ja M. Mårtensson (1998), "*Human resource costing and accounting versus the Balanced Scorecard: A literature survey of experience with the concepts*", A report to the OECD, School of Business, Stockholm University
- Kaplan, R. ja D. Norton (1996), "*The Balanced Scorecard*", Harvard Business School Press, Boston, MA

Lev, B. (1997), "*The Boundaries of Financial Reporting and How to Extend Them*", International Conference on Industrial Competitiveness in the Knowledge-Based Economy, Stockholm February 20-21

Lev, B. ja P. Zarowin (1998), "*Measuring Intangible Investment: The boundaries of financial reporting and how to extend them*", OECD

Roos, J., G. Roos, L. Edvinsson ja N. C. Dragonetti (1997), "*Intellectual Capital – Navigating in the new business landscape*", Macmillan Press Ltd., London

Sackmann, S.A., Flamholz, E.G. ja Bullen, M. (1989), "Human Resource Accounting: A State-of-the-Art Review", *Journal of Accounting Literature*, Vol. 8, ss. 235-264

Scarpello V. ja Theeke H.A. (1989), "Human Resource Accounting: A Measured Critique", *Journal of Accounting Literature*, Vol. 8, ss. 265-280

Skandia (1994), "*Visualizing Intellectual Capital in Skandia*", Supplement to Skandia's 1994 Annual Report, Stockholm

Sveiby, K. E. (1989), "*Den osynliga balansräkningen*", Affärsvärlden, Stockholm

Sveiby, K. E. (1997), "*The new organisational wealth*", Berrett-Koehler Publishers Inc., San Francisco

ELINKEINOELÄMÄN TUTKIMUSLAITOS (ETLA)
THE RESEARCH INSTITUTE OF THE FINNISH ECONOMY
LÖNNROTINKATU 4 B, FIN-00120 HELSINKI

Puh./Tel. (09) 609 900
Int. 358-9-609 900
<http://www.etla.fi>

Telefax (09) 601753
Int. 358-9-601 753

KESKUSTELUAIHEITA - DISCUSSION PAPERS ISSN 0781-6847

- No 661 AJEET MATHUR, Finland - India Economic Relations. A Twinning Study of Trade and Investment Potential. 28.12.1998. 123 p.
- No 662 JUKKA LASSILA - TARMO VALKONEN, Social Security Financing and External Shocks. 04.01.1999. 39 p.
- No 663 JYRKI ALI-YRKKÖ - HANNU HERNESNIEMI - MIKKO MÄKINEN - MIKA PAJARINEN, Integreringen av Finlands och Sveriges näringsliv. 05.01.1999. 40 s.
- No 664 GRIGORI DUDAREV - MICHAEL ZVEREV, Energy Sector in Russia. Economic and Business Outlook. 15.01.1999. 49 p.
- No 665 JYRKI ALI-YRKKÖ - PEKKA YLÄ-ANTTILA, Omistus kansainvälistyy - johtamis- ja valvontajärjestelmät muuttuvat. 29.01.1999. 32 s.
- No 666 MIKKO MÄKINEN - MIKA PAJARINEN - SIRKKU KIVISAARI - SAMI KORTELAISEN, Hyvinvointiklusterin vientimenestys ja teollinen toiminta 1990-luvulla. 08.02.1999. 67 s.
- No 667 OLAVI RANTALA, Tuotannon ja työllisyyden alueellisen ennustamisen menetelmät. 19.02.1999. 43. s.
- No 668 JARI HYVÄRINEN, Globalisaatio, taloudellinen kasvu ja syvenevä alueellistuminen. 02.03.1999. 68 s.
- No 669 JUKKA LASSILA, An Overlapping-Generations Simulation Model for the Lithuanian Economy. 02.03.1999. 21 p.
- No 670 JUKKA LASSILA, Pension Policies in Lithuania - A Dynamic General Equilibrium Analysis. 02.03.1999. 44 p.
- No 671 HENRI PARKKINEN, Black-Scholes-malli ja regressiopohjainen lähestymistapa stokastisen volatiliteetin estimointiin - Katsaus suomalaisten FOX-indeksiopitoiden hinnoitteluun. 15.03.1999. 88 s.
- No 672 JUHA SORJONEN, An Econometric Investigation between Volatility and Trading Volume of the Helsinki and New York Exchanges: A Firm Level Approach. 26.03.1999. 99 p.
- No 673 ANTTON LOUNASHEIMO, The Impact of Human Capital on Economic Growth. 30.03.1999. 35 p.

- No 674 PASI SORJONEN, Ex-Dividend Day Behaviour of Stock Prices in Finland in 1989-90 and 1993-97. 30.03.1999. 29 p.
- No 675 PASI SORJONEN, Ex-Dividend Day Stock Returns and Tick Rules. 30.03.1999. 21 p.
- No 676 PASI SORJONEN, Ex-Dividend Day Stock Price Behaviour, Taxes and Discrete Prices; A Simulation Experiment. 30.03.1999. 28 p.
- No 677 JUHA HONKATUKIA, Kioton mekanismien käytön rajoittamisen vaikutukset Suomeen. 08.04.1999. 41 s.
- No 678 ANSSI PARTANEN - INKERI HIRVENSALO, North and Westbound Foreign Trade Potential of the Baltic Rim. 28.04.1999. 17 p.
- No 679 GRIGORI DUDAREV, The Role of Technology in Shaping the Energy Future in Russia. 06.05.1999. 48 p.
- No 680 REIJA LILJA - EIJA SAVAJA, En översikt av systemet för arbetslöshetsskydd i Finland. 06.05.1999. 21 s.
- No 681 REIJA LILJA - EIJA SAVAJA, Olika sätt att söka arbete, attityder och motivation hos arbetssökande i Finland. 06.05.1999. 73 s.
- No 682 JARMO ERONEN, Cluster Analysis and Russian Forest Industry Complex. 24.06.1999. 16 p.
- No 683 SEPPO HONKAPOHJA - ERKKI KOSKELA, The Economic Crisis of the 1990s in Finland. 09.08.1999. 53 p.
- No 684 STEPHEN KING - ROHAN PITCHFORD, Private or Public? A Taxonomy of Optimal Ownership and Management Regimes. 12.08.1999. 33 p.
- No 685 HANNU HERNESNIEMI - MIKKO HONGISTO - LASSI LINNANEN - TORSTI LOIKKANEN - PÄIVI LUOMA, Kioto-sopimus ja yritykset. Esitutkimus strategioista. 07.09.1999. 68 s.
- No 686 PETRI ROUVINEN, R&D Spillovers among Finnish Manufacturing Firms: A Cost Function Estimation with Random Coefficients. 08.09.1999. 51 p.
- No 687 ANNE ERONEN, Classification of Intangibles - Some Comments. 04.10.1999. 13 p.

Elinkeinoelämän Tutkimuslaitoksen julkaisemat "Keskusteluaiheet" ovat raportteja alustavista tutkimustuloksista ja väliraportteja tekeillä olevista tutkimuksista. Tässä sarjassa julkaistuja monisteita on mahdollista ostaa Taloustieto Oy:stä kopiointi- ja toimituskuluja vastaan hintaan.

Papers in this series are reports on preliminary research results and on studies in progress. They are sold by Taloustieto Oy for a nominal fee covering copying and postage costs.

d:\ratapalo\DP-julk.sam/04.10.1999