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**HOLISTIC MEASUREMENT OF  
INTELLECTUAL CAPITAL**

**COUNTRY COVERED: AUSTRIA**

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## **ABSTRACT**

In the beginning, the rationale of measures is reflected, concluding that there have to be different and strategically derived scopes for internal and external reporting of intangible assets. After critical discussion of some of the already implemented models with special attention to the EFQM model, an alternative, holistic oriented and dynamic concept to measure and manage intangible assets is suggested. Several of the assumptions concerning intellectual capital and the awareness of intellectual capital to top management are discussed in the empirical part. The survey concludes with supporting evidence for the correlation of active management of intellectual capital assets and corporate financial performance.

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## INTRODUCTION

1. The purpose of this paper is to document emerging standards of measuring and reporting IC, to discuss open questions and to draw some preliminary conclusions in the form of criteria for IC measurement.
2. The authors will first discuss the state of the art (which rather is a state of infancy). They will, however, not elaborate on the notions of “knowledge society”<sup>1</sup>, “new economy” and the necessity to compete on knowledge, as they hold this to be common knowledge in the target community (for a discussion see Schneider 1999 and Reinhardt et.al. 1999). Instead they will attempt to clarify the concepts of KM and IC measurement, as the discussion within the emerging “community of practice” (that includes theorists and their writings, see Gibbon et al. 1994) seems to be as confused and unstructured as one would expect for the pioneer stage of a “new discipline”: High aspirations are mixed with quite modest singular tools; IC measurement issues are connected to the much broader idea of KM, narrower shareholder approaches with a pure economic logic come side by side with idealistic expectations to bring the human factor and ethics back into business. In its second section the paper assesses the questions put forward by the organisers of the conference: The feasibility of different measures (financial or non-financial, targeted at external or internal constituencies, standardised or customised). This discussion will be followed by a short assessment of the EFQM model for Business Excellence and its limitations that might be resolved by the LIAHONA-HOMES approach.
3. In a third section, we would like to address the practical application of measures for Intellectual Capital Assets and focus on a survey study “Best Practices in Enterprise Development” designed similar to the well known Ernst & Young paper “Measures that matter”. It was conducted in Austria in 1998. Results are discussed a) in comparison to the international study and b) according to the Intellectual Capital components, that is Human Capital - which seems of dominating importance -, Stakeholder Relations, and Organisational Capital. The qualitative difference to the Ernst & Young study is the shift from shareholder perspective (investors needs) to stakeholder perspective (Customer, Supplier, Employees and Management) and the attention to small and medium sized enterprises.
4. A short conclusion will summarise the authors’ arguments and provide an outlook of where they tend to head in the upcoming future.

## 1. WHAT IS THE STATE OF THE ART?

5. Having been part of the field for about 6 years now, we can conclude the following:
1. KM and the measurement of IC are concepts with a clearly positive connotation; they are welcome to all parties by all parties involved as a vision, although there is still much confusion as to their concrete meaning.
  2. KM and the measurement of IC go far beyond traditional accounting. Visions of management excellency and also some hype have gathered under the umbrella of these new notions.
  3. A body of basic concepts is emerging as common denominator of the field despite its very different roots, such as TQM, Human Resource Accounting trials to develop better foundations of investment into IT, or the evaluation of firms and investment projects

### 1.1. Objectives of measurement

6. The vision, which is reflected in different models and discussed in literature and at a growing number of conferences, clearly points towards better management of those resources considered to be essential in the new economy (INTERNAL REPORTING). On the other hand, the IC measurement movement is nourished by the shareholder-value approach (and its sibling, the stakeholder-value approach) which require more transparency and information directed towards external constituencies (EXTERNAL REPORTING).
7. There is no controversy regarding the importance of intangibles. In a knowledge or post-industrial society knowledge constitutes a large part of a product's as well as a firm's worth.
8. A new pattern of production is emerging with serious consequences for accounting and costing. While fixed development costs are high and run over longer periods to construct a knowledge product, their reproduction or variable costs converge to zero (Arthur, 1996). Firms thus need large investments at the start which will constantly pay-off in later periods. This can partly explain the amazing values shareholders attribute to high-tech and e-commerce start-ups although we will doubt that Tobin's q reflects nothing else but IC in a later section of this paper.

### 1.2. Scope of the endeavour

9. Most scholars, for the time being, think about supplementing traditional accounting. But, there are also visions to substitute traditional double-book keeping. The latter aspirations show in new regulations by the IAS and in attempts by the SEC to define new rules for the access to trading.

### 1.3. Differences to financial accounting?

10. Depending on the scope and basic concepts involved some authors claim that there are major differences between financial accounting and the measurement of intellectual capital<sup>2</sup>. Those differences, though, are not stated clearly in detail, but rather at a high level of abstract evaluation. Mainly, IC measurement is supposed to be oriented towards the future while financial accounting is supposed to look backwards. IC measurement is further claimed to capture so called soft-facts (qualities), while financial

accounting is believed to focus on hard facts (quantities). Finally, IC measurement is seen as a resource oriented concept with a focus on the causes of value creation, while financial accounting is seen as reflecting the outcome of the latter. But, if we look at matters more closely, some differences fade away (Sveiby 1998, Edvinsson / Malone, 1997, Stewart, 1997, Amidon, 1997, Roos et al. 1998, Danish Trade and Industry Development Council, 1997).

11. In a narrower sense, both concepts focus on assets. The only difference is that traditional assets are mostly tangible and that there is a market price which helps us to know, which numbers we should keep in our books.

12. Nobody ever claimed that a building, machines or vehicles would necessarily create value. In effect, if the wrong goods were produced in the building by the machines and transported by vehicles, then the whole investment had to be considered as sunk cost. The same holds true for investment in intangibles.

13. The value of both investments relies on a hypothesis, namely the hypothesis that the investment will pay-off in the future.

14. So, the only thing that is different is that our hypotheses as to value creation have changed considerably which also shows in shareholders' ratings at the stock exchanges. Shareholders obviously hold strong beliefs in modern technology, innovation and speed. This is reflected in signals to management. Prices of shares express expectations of future earnings that sometimes seem far beyond any rational analysis of fundamentals: If Amazon.com will finally make profit in 1999 its price-earning ratio would be nearly 2000 (!) Even if we consider the different cost structure mentioned above (high fixed costs preceding returns that are virtually not reduced by variable costs), such a ratio can hardly be explained by the value of intangibles alone. Investors' expectations seem to be shaped less and less by fundamentals but by the volatile movements of demand and supply on stock markets, thus feeding back on themselves (see Schneider, 1999). Therefore we hold that –in the short run- market prices are no good proxy of a firm's intellectual capital. If they were we would have to explain how it can happen that the world's intellectual capital suffers a 40% depreciation over night, as we have seen to be the case in the financial crises of the intermediate past.

15. To come back to the question of differences between accounting intangibles and tangibles: Are numbers on tangibles more secure? They are not if we consider their potential to create future value. They are if we talk about assessing their costs of investment and they may be as securities for loans. As there is a market for tangibles they could be sold in the case of failure.

16. But the basic insecurity about the future is the same. And even if we look at the numbers to be kept in our books, there is a huge body of literature discussing the price (current, historical), the components to be included if self-produced (overheads) and the rates of depreciation.

17. ERGO: At second gaze, financial accounting security does not rely on facts or unquestioned theory but on convention. With regard to future results they are as uncertain as are numbers on intangibles.

18. But, IC measurement does not only capture investments (inputs). It also captures some intervening variables (such as employee and customer satisfaction) and some results.

19. Again, there is no difference to traditional financial accounting. Intermediate results are for instance captured in semi-finished and finished products as well as self-produced facilities, results are reflected in P/L statements.

20. ERGO: The only difference again relies in the prices we attach to our investment. Traditional financial accounting, especially in its European version, is based on cash flows which have been realised, while suggestions for the measurement of IC contain a mixture of realised outflows of cash (such as

training expenditure) and cash flows expected in the future. The latter are insecure. But this has always applied to tangibles as well, when they were evaluated in the processes of mergers and acquisitions (Mandl/Rabl, 1997).

21. At the end of the day the whole difference comes down to the degree of accessibility of an asset. Intangibles are less accessible as long as they reside in the heads of people or in such ephemeral phenomena as good climates and innovative, entrepreneurial cultures. Therefore we have seen a strong and questionable tendency to transform human capital into structural capital which can be appropriated by the company (as a strong representative of this position, see Edvinsson in personal discussion and in: Edvinsson/Malone, 1997)

#### **1.4. Why do we evidence awareness for IC measurement right now?**

22. Many attempts to measure IC go further than to create an accounting system akin to the system existing for tangibles. Those attempts are to be understood as contributions to strategic and organisational theory and deal with the overall question of how to manage a business. Due to the changes in cost structure mentioned above, the management process now accounts for the bulk of funds invested. Instead of treating this process as a black-box and assigning it overhead costs, shareholders and managers alike are now interested in understanding it more deeply. In terms of (neo-classical) management understanding is established via planned and structured action. Planned and structured action is based on informed decision-making. And informed decision making needs measures, codes or benchmarks. Those more far reaching attempts can draw on already existing systems to capture “qualitative factors”, such as TQM, HRD or BPR. They are closer to management models than to financial accounting. There is only one imperfection: They involve the complex issue of management theory in general. No wonder, we see as many experiments evolve (and probably fads come and go) as there are models on how to manage a business under current and future conditions. This search for good theory is not new, so why the sudden interest in IC measurement?

23. To understand the current interest in IC measurement we need to consider the enabling capacities of new technology. We simply can communicate now without depending on simultaneity (time) and proximity (space) which was impossible two decades ago. We can search huge amounts of data for meaningful patterns (data-mining). We can keep constant track of our process and show on Excel sheets how a change in any variable will affect other areas in the business.

24. To summarise we see the growing interest in IC measurement rooted in two causes:

- The changing ratio of value contribution by intangibles rather than tangibles which asks for better management of intangibles. As management relies on measures this involves measuring intangibles.
- Enabling technologies allow to keep track of the knowledge immanent to operations within the tangible value chain in a way that was not possible two decades ago.

#### **1.5. Learning from the past**

25. The euphoria about IC measurement is an asset in itself that should not be destroyed. On the other hand the following reservations must be considered if we don't want to repeat mistakes of the past:

- IC measurement tends to overburden its agenda with the broad and complex issue of what management excellence really is. If it “only” went for a documentation of major input into

the management process it would be easier to develop standards. Just to work with the analogy again: financial accounting is used by all companies in a similar way while they pursue very different strategies. The same could apply to IC measurement. A documentation of capital could be mandatory to all companies but strategies defining the highly - leveraging - use and configuration of these inputs would be reserved for internal reports (as they have been in the past) and not be open to competitors.

- We acknowledge the need for transparency and information by external stakeholders. But this need must be traded off against the protection of genuine competitive advantage.
- Thus, we seem to need **two** different systems: One for external reporting which aims at relationships and image-building and one for internal use which traces the building of knowledge in form of resources and products.
- The measurement of IC is only one step in the ambitious process of reshaping business organisations for a future in the new economy. It is a necessary start, as we can hardly manage development if we don't know our actual position. This start must then be followed by measures that ensure the creation of intellectual capital. Hence, the start is costly and consumes a lot of management attention as well as change energy within the organisation. If there is no follow-up project because funds have been cut, management gets impatient or for other similar reasons, measurement will turn into an end of its own and therefore into waste. We therefore recommend a form of integrated BPC (business process controlling) which accompanies the process of value creation on a constant basis, rather than a traditional form of controlling which is often in danger to isolate itself from its internal customers.

## 1.6. Standards, developed so far

26. It is time now to define some basic terms used in this paper, such as intangibles, intellectual capital and knowledge. The International Accounting Standard Committee defines **intangible assets** as follows (IAS 38, September 1998): “An intangible asset is an identifiable non-monetary asset without physical substance held for use in the production or supply of goods or services, for rental to others, or for administrative purposes. (...) An asset is a resource, (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”. This refers to patents, licenses, trademarks, and copyrights. Additionally, investment in IT infrastructure and goodwill in the case of a legal transfer can be described as intangible assets. In the knowledge management field the term ‘intangible asset’ is understood within a broader context. Most approaches follow more or less explicitly a typology of intangibles which distinguishes three categories of assets. Those assets overlap with the IAS notion of intangibles but include some additional factors, such as, for example, value generating databases and employer-employee relations. Therefore the term common to describe those assets is intellectual capital. The notion intangibles is mostly used as a synonym for intellectual capital as in this paper. The three categories which have emerged as a common standard are:

**Human capital (HC)** (referring to knowledge, skills, motivation, team-relations; in short all factors in relation to employees that foster performances customers are willing to pay for);

**Stakeholder relationships (StC)** including predominantly customer capital. We see the term “stakeholder relationships” as more appropriate than the usually used term “customer capital”, because it includes suppliers and other constituencies. For some companies supplier relations may constitute a unique competitive advantage, for others relations to public authorities might be crucial. A general model should account for such cases, although we would agree that for most firms customer relations are the most important component of this category.

**Structural capital**, (SC) referring to “everything that is left when people have gone at night” (cf. Edvinsson & Malone, 1997, p. 17), such as databases, organisational structure, superior procedures translated into computer software etc.

27. It has also been suggested to work with a fourth category of intellectual capital, namely image or reputational capital. This would make sense, as reputational capital influences the other three categories. Companies with a high image value might follow this suggestion.

28. Intellectual capital as defined above is obviously understood as stock. Stock is the outcome of processes, measured at a certain point in time. If we link the IC typology underlying most IC measurement models to ideas which were contributed by strategic theory many years ago we can distinguish indicators of the past (such as profit), the present (orders in procession) and the future (such as development of new products, training of employees) and thus capture important flows as well. People interested in IC measurement focus especially on indicators that reflect the potential to create value in the future. Those indicators, though, are the most risky ones: We must keep in mind that all projections into the future are nothing but (more or less) educated guesses and can fall into pieces by sudden, discontinuous changes. Still, if we don't want to rely on the “blind” forces of evolution alone, but plan and design our future, we need signposts to show us our current positions and our paths – there seems to be no alternative to measurement.

29. To define knowledge exceeds the extent and purpose of this paper. For the sake of our argument we define knowledge as the outcome of the process of knowing, that is as a stable structure. This definition is uncommon and gives knowledge a much less positive connotation than in most other publications. If knowledge is structure or as Nonaka/Takeuchi say the reinforcement of observations, it is conservative. Of course, we can win knowledge via combination of such structures but the structure itself can hardly be challenged as would be necessary for radical innovation. As we can see from the Nonaka/Takeuchi matrix, most definitions are not followed to the letter by those who formulate them. Many authors distinguish between information and knowledge in their first paragraphs, but use the two concepts more or less synonymously in following sections.

30. We hold that information is the process of drawing distinctions (by imposing the form of a drawing line on a complex environment). Information thus is an important part within the process of knowing. It is believed to be more fluid than knowledge which is information “frozen into structure”. To be precise we therefore don't want to live in a knowledge society or work in a knowledge organisation, but in a skilled or knowledge generating society or organisation respectively. Definitions, if taken seriously and not only treated as a necessary academic exercise, entail concrete consequences for the ways we organise knowledge management. Companies will develop strategies which rather focus on the exploitation of resources or on their creation. Depending on the strategy they will either focus on stocks of knowledge (and therefore build databases, write manuals, freeze past experience into software) or they will focus on processes of re-information (and therefore foster communication, face to face encounters, customised solutions). We can trace both attempts in the practical field as described by Hansen et al. (1999) for the consulting firms Andersen Consulting and McKinsey.

31. It is our impression that such clarification has only started in the field. Most examples of IC measurement seem rather eclectic. They mix the two strategies, sometimes seem to focus more on maximising stock than on stretching given resources, as suggested by Hamel and Prahalad (1994) and rely mainly on implicit hypotheses than to state them explicitly. Those hypotheses are very plausible. To invest into R&D and training, to foster a co-operative and innovative culture, to improve stakeholder relations etc. are reasonable endeavours - at least in general. But they are no ends in themselves. Inapplicable learning may even have a negative impact as they lower people's motivation, highly satisfied customers may not repurchase because of a lack of need, innovation may be the wrong strategy for some players in some industries. A critical review of models developed so far is provided by Reinhardt et al. and will be referred to in section 1.7.

32. For a discussion of the reception of IC measurement in the practical field we will now refer to the Austrian situation. After reviewing annual reports from more than 120 companies (including all of the currently (1998) 70 stock noted companies) in the period from 1993 to 1998 (totalling in more than 600 documents) it can be said that there is no impressive reporting of intangible assets. What could be found were verbal descriptions of selected areas (e.g. development of workforce (average age, average payroll, average days of education, average absence rate). But such reports were not elaborated in a systematic way<sup>3</sup>.

33. So, we don't see a lot of action yet. But things are different if we turn to awareness of the importance of the issue. Examining the current business environment of Austria, an increasing awareness of the topic "intangible assets" can be reported. This does not imply that the shortcomings reported by the OECD (1996)<sup>4</sup> have already been settled. Compared to international standards (especially Canada, USA, and the Netherlands) consciousness about intangibles seems still low, but things are changing dramatically - thanks to intensified coverage in the business media and press. Availability of statistical data on intangible assets (Vickery and Wurzburg,-1998, p. 4) is characterised by a significant lack, but again, the problems are tackled, at least on a minimum level<sup>5</sup>. Governmental institutions are keen to deliver statistical information material (see OESTAT<sup>6</sup>), but face the same dilemma as most of the micro level organisations: currently there is only one legal standard of measuring intangible assets available (IAS 38 - Intangible Assets, September 1998), that could be a mould for national reporting, but it does not cover the spectrum of Intellectual Capital (see definition above). The topic of standard definition on Intangible Assets and Intellectual Capital was heavily discussed at the 3<sup>rd</sup> International Conference on the Management of Intellectual Capital in Hamilton, Canada 1999, by more than 80 experts from all over the world. At that time there seemed to be a consensus, that it is too early to talk about definitions. Too much of the nature of IC is still unknown and hard to capture in explicit terms.

## **1.7. Review of existing models of IC measurement**

34. As mentioned above and also shown by Ducharme (1998) most of the indicators, suggested by approaches to IC measurement, are an eclectic mix of aspects. Some rely on theoretical foundations while others rather are heuristics developed in the practical field and most certainly subject to the special circumstances of time and space in which they were developed. A theoretical interpretation of the approaches discussed by Reinhardt et al. show that there is no explicit link of Intellectual Capital dimensions (HC; SC; StC) to theoretical schools of economical and managerial thought. The analysis of the measurement perspectives leads to the following evaluation:

- Measuring intangible assets based on goodwill or market-to-book-value differences seems to be arbitrary since the efficient-market-hypothesis has been more or less falsified for the last 20 years of US stock market evaluation.
- There is an overemphasis on highly aggregated financial measures that do not provide insight into relations between cause and effects.
- There are only a few methods to describe and to assess competitive knowledge, especially activities such as knowledge development and knowledge transfer are not considered in particular in the measurement activities (stock- vs. flow-perspective).
- There is more emphasis on measuring individual abilities and competencies instead of measuring collective knowledge and capabilities.
- Measures focus on inputs but seldom on outputs. If output measures exist, then the relation to financial performance indicators is scarce.

- Availability of data and easiness of measurement seems to be the main argument of IC conceptualisation, instead of theoretical or conceptual coherence. Thus the “easy to count” (such as training hours) drives out the necessary to know (such as training quality)
- Measurement scales of tangible and intangible assets are different; consequently, both measures are not directly comparable.
- The time frame of measuring IC seems to be too short. If behavioural interventions are treated as investments in IC, then it is obvious that the time frame that has to be considered is much longer than a traditional accounting period.

35. We do not believe that it will be possible to develop a universalistic “theory of the firm” that covers its existence, its borderlines to what is perceived as environment, its competitive position and its development. We even do not think such a theory would be desirable. In general, the legitimate need of external stakeholders and business schools to standardise management knowledge will always be counteracted – and thus pushed to higher levels- by the management “reality” as a destructive (Schumpeter, 1946) innovation process that breaks benches rather than to mark them (see also Henry Mintzberg’s observation that management is an art rather than a science, Mintzberg, 1989, 7ff).

#### **1.8. What can we conclude from the status quo?**

36. At the end of the day the issues of measuring intellectual capital and managing knowledge come down to the idea of turning data into knowledge and knowledge into products and services so as to serve third parties who will pay for what they get. To be able to understand those transformations we need to trace inputs, process variables and intermediate outcomes.

#### **1.9. Our position, as drawn from our experiences so far, is the following:**

37. If we talk about changing double book-keeping after 500 years since its invention by Lucca Paccioli we are faced with some technical problems but not with the overwhelming complexity of designing a universalistic management model. The latter seems to be intended by approaches such as Skandia’s Navigator or the Balanced Score Card. We could, for instance, develop a third category of accounts, quasi a hybrid between assets and expenses as has been suggested by Rennie (1998). She discusses the establishment of a “Statement of Investments in the Future”, which buffers the expenses in intangible assets for a period of 3 to 5 years, until they prove to be either expenses (and consequently are charged to the income statement) or investments (and therefore activated as assets on the balance sheet). It could easily be enlarged by the above described categories of Intellectual Capital Assets (HC;SC; StC) and structured similar to the Sveiby (1998) concept of “the invisible balance sheet”.

38. The concept of buffers might prove to be useful for a future cost accounting model, especially with regard to knowledge-intensive research projects, but it does not answer the general problem of measuring intangible assets, since only direct investments in the creation of intangible assets are considered. Emerging intangibles that cannot be expressed in terms of money yet, are still ignored.

39. Another problem is to integrate the very “fuzzy” designed approach of the “knowledge statement” into the existing legal framework of financial reporting. In the Austrian as well as in the German Handelsrecht, the recognition on the balance sheet of Intangible Assets is currently prohibited (with only few, recently implemented exceptions on software)<sup>7</sup>

40. The CICA-handbook (1998), mentions two other major problems on the accounting of intellectual capital: organisations do not own or control all forms of IC<sup>8</sup>, and the transactions or events that underlie IC recognition are not clear, which implies that the time of their occurrence is difficult to assess.

41. If we strive for more, namely a sound documentation of the overall management process which draws mainly from intangibles, then many questions arise, as demonstrated above. For the time being our recommendations with regard to these questions are:

1. We need to dynamise our models. It is not sufficient to document stocks, but we need to keep track of flows. This implies a thorough understanding of the operational processes in which flows “emerge”.
2. We need to focus on the interactions between different factors constituting intellectual capital rather than on the factors themselves. Therefore the addition of such factors (as suggested in the Intangible Assets Monitor (Sveiby 1996) or the Navigator (Edvinsson/Malone 1997) does not seem the right path to follow. Multiplying the factors will provide us with some information of how different components of IC contribute to overall effectiveness (see the LIAHONA-HOMES model described below).
3. We reckon that two different systems will be needed but that both systems can be fed from the same sources of data. For external reporting comparability is an important requirement, therefore we need standardised and easy to administer measures. For internal use we need much more detailed information, which will and must be customised to strategic purposes.
4. As for other codes of information we need indicators that account for different size. Absolute measures are therefore not useful. Relative measures and denomination-free indicators can reflect positions in relation to reference points which can either be deduced from theory or from benchmarking with one’s own past, as well as with industry averages or best practice-benchmarks.

## 2. FEASIBILITY AND ROBUSTNESS

42. It will not be possible to discuss criteria for the over 300 measures that have been suggested in the literature. Therefore we will provide four synopses to structure such a discussion. Table 1 confronts physical and intangible assets in order to show differences between the two categories of resources which affect their management. Table 2 frames the discussion from an epistemological point of view. Measuring makes sense within a traditional paradigm and is rather questionable from the point of view of other ones. Table 3 specifies criteria for measuring intangibles in a business context. Finally, Table 4 confronts alternative modes of measurement that influence feasibility.

**Table 1: Intellectual Resources are different**

Criteria	Physical Resources	Intangible Resources
Underlying theories	accounting theories and neo-classical theories	information theory and various behavioural theories, deficit of implementation and empirical evidence
Price formation mechanisms	well-known, functioning markets, specifiable	only partly known, not (fully) specifiable, markets failing or only emerging
Ownership	only with one/few natural person(s) or legal entity(ies)	Ephemeral, can be owned and shared by many, problems to protect intellectual property
Returns	decreasing	can be increasing
Costs of production	fixed and variable costs distributed rather evenly over live cycle	high fixed costs before creating a market, reproduction costs negligible
Value over time	depreciate with use	appreciate with use
Management	by control	by learning and coaching

43. When designing measurement systems we do so for management purposes. All too often such designs follow the old pattern of an industrial age: They treat intellectual items as isolated entities that can be owned and influenced by individuals and are interested to plan, organise and control the new resources with existing management procedures, such as for example appraisal and incentive schemes. Our recommendation is, that intellectual resources are not understood well enough yet to well-design corresponding management systems. We are aware that this caution contradicts management's and investors' needs for more certainty, but don't hold they would be served by the "pseudo-certainty" of new measurement fads.

**Table 2: Epistemological approaches and measurement**

Approaches	Understanding “reality”
<b>Classical science</b> (positivistic, Popperian)	<p><b>Basic assumptions:</b> Phenomena are given; a “whole” can best be understood by dividing it into isolated parts and by adding the knowledge on those parts Rules:</p> <ul style="list-style-type: none"> <li>• describe the phenomena to be studied as accurately as possible</li> <li>• formalise (the more math the more scientific)</li> <li>• design methods of objectified perception (measurement) to exclude subjective bias</li> <li>• synthesise your findings</li> </ul>
<b>Interpretative, constructivist (constructionist) approaches</b>	<p><b>Basic assumptions:</b> Phenomena are not given, but socially constructed A “whole” can best be understood by experiencing it as such, thus by intuition and empathy <b>Rules:</b></p> <ul style="list-style-type: none"> <li>• Don’t focus on isolated elements but on their interrelations</li> <li>• Invest effort into the construction of phenomena, experiment with different constructions</li> <li>• Recognise pattern rather than achieving accuracy in isolated details (fuzzy rather than predicative logic)</li> </ul>

44. It is obvious that measurement in its habitual meaning rather fits the first category of theories of knowing. Many researchers and practitioners, though, favour the second category and still can’t do without measuring, because that is the one and only way of knowing that has been cultivated over the last 300 years in the West.

**Table 3: Criteria for IC Measures**

	CRITERIA	Definition	Example	Ease to Fulfil
<b>classical research criteria</b>	VALIDITY <sup>9</sup>	a measure captures what we want to know, what it pretends to measure	absenteeism <sup>10</sup> as a measure of employee dissatisfaction	double problem of construct validity and indicator validity; never 100%
	RELIABILITY <sup>1</sup>	stability of measurement instruments; different measurements, produce same results	customer survey used by different affiliates at different points in time	“ceteris is rarely paribus” complex, real-times situations are no laboratories
	OBJECTIVITY <sup>1</sup>	distant and interest-free perspective of an observer	intelligence tests designed and validated by “scientific” procedure	to be interest-free is logically impossible but can be brought into line by sound methodology
<b>business context</b>	EFFICIENCY	benefits of measure outweigh costs of their gathering, procession and diffusion	skills measured as formal qualifications versus assessment in a 6 months trainee period	easier for singular measures drawn from existing accounts and statistics; increasingly easy for secondary research (Internet); often in contradiction to validity and strategic relevance
	USABILITY	measures are paid attention, interpreted in an intended way and translated into action	managers give more feedback after a survey showing a corresponding deficit	KISP principle Plausibility, understandability, ease to access - manipulative
	STRATEGIC RELEVANCE	Measures are important to monitor strategy and inspire the development of new strategy	innovativeness measured as new products to sales ratio	often driven out by the easy to quantify and a “squirrel”-mentality of accumulating details

45. We can see that the criteria in Table 3 partly contradict each other. No ideal design has been defined so far. On the contrary: as the contradictory literature on qualitative research shows there are no “objective” answers to the open questions mentioned above.

**Table 4: Different modes of measuring**

<b>Measures</b>	<b>+</b> <b>Advantages</b>	<b>≡</b> <b>Disadvantages</b> <b>Question Marks</b>
Financial	available in existing documentation, familiar to internal and external decision makers, high comparability	reflect past effort or depend on the existence of markets, systematically devalue the future (discounted NPVs), can contain speculative bubbles
Non Financial	can capture qualities that have to be developed in order to create financial value in the future, allow feed back on non-market related activities	Comparability is low, questions of validity, reliability, etc. arise
Standardised	high comparability, necessary for official regulation required by investors and other external groups, suited for external reporting	Compromised common denominator Bureaucratic duty instead of lived culture (ISO) will inspire imitation (collusion) rather than competition by innovation
Customised	can capture strategically relevant information points toward uniqueness, competitive advantage	Expensive, not comparable, open to self-delusion, can be complicated and become an end in itself
External Reporting	information to investors, more correct determination of net income, taxation etc.	needs for confidentiality, uncertainty related to returns “not yet realised”
Internal Reporting	CIP - accompanying quality control, much higher transparency of processes, learning about actions and consequences, rising awareness for strategically relevant behaviours, early-warning indicators	could be belly-bottom-centred, instead of focused on customers, reporting can overrule doing and improving, can be inefficient (if ineffective)
Control by third-party	incentive to perform for outer-directed persons, feed back to superiors	can rise fears and resistance as well as manipulation of measures
Self-control	Supports learning processes and processes of continuous improvement, often more efficient, high acceptance	depends on good will to learn and improve, needs training how to use tools
Isolated measures	easier to assess, don't presuppose a theory of interdependencies, allows to learn	can completely miss the purpose, can be waste, or worse, can misdirect action
Integrated measures	would be desirable from a theoretical point of view, but can be only partly realised (no universalistic theory of good management)	will take years to develop and still only be the “latest state of error”

46. To summarise this section we would like to point out the following:

47. In a knowledge economy information is abundant, attention and awareness are scarce. In order to succeed, everybody needs not only fulfil his/her job, but also communicate and signal what (s)he has done so that others can inter-link their actions with that. Therefore we must understand the measurement movement as part of a necessity to communicate signals about something that is not fully tangible. A modest version would be to capture only investments and their financial outcomes as we did in the old days. How those investments are transformed into products and services internally would not be part of reporting at least not of external reporting. The advantages of such a modest procedure would be efficiency, higher validity and reliability. Its disadvantages would be lack of strategic relevance and no standard of management. Management would remain an art, although a professional one.

48. A more ambitious version wants to describe and measure internal processes. By such descriptions, expectations of investors and other stakeholders are shaped and standardised. That would be costly if we want to reach validity and not only to construct self-fulfilling prophecies. The most important advantage of an ambitious model would be a general high understanding of management processes. Its essential disadvantage would be this same common understanding in the form of standards, reinforced by measures: Standards drive out innovation because of the innovation paradox: The new never passes the feasibility requirements of the old.

49. We would also like to add the observation that we are quite surprised by many authors' claims and practitioners' expectations that measuring intangibles were something new. Management has always been the application of knowledge to knowledge (Drucker, 1993, 1997) We have seen Human Resource Accounting as a big effort in the 70s. Contingency theory has inspired a whole body of literature and empirical studies to measure structure as dependent of external variables and as influencing behaviour and thus success. Millions have been spent on this project before researchers quit the effort without clear or applicable results. A similar experiment was repeated – although with a narrower scope - to measure organisational or national culture at the beginning of the 80s. Again results were mixed and did not really deliver clues for management. A next effort was undertaken within the (total) quality movement. The Deming Award, the Malcom Baldrige Award or the European Quality Award are all based on the measurement of intangibles. Consultants specialised on mergers and acquisitions have developed extensive checklists on how to assess a target's value that capture many intangibles. IC measurement can learn a lot from reflections and suggestions on the measurement of intangibles that have been around for a while. We don't have to reinvent the wheel. Especially we need not repeat old mistakes. Due to the enabling capacities of new technologies we are probably in a better position and can deal with amounts of data in a way those forerunners could not. But, we must also be aware that the sellers of those new technologies push their products into the markets. They need underlying theories as sales promotion. Thus it is no wonder that the IC measurement movement finds so much resonance with suppliers of high tech and consulting products.

50. In the next section we will describe and discuss the European Foundation for Quality Management - Model of Business Excellence as a voluntary standard that is gaining momentum and its further development into the LIAHONA-HOMES<sup>11</sup> - Concept (Holistic Learning & Leading Compass for Organisation, Management, Education and Services) as one model of constant, instantaneous and integrated measurement.

### 3. THE EFQM<sup>12</sup> MODEL

51. This model is the basis for Self-Assessment and is the framework against which applicants for The European Quality Award are assessed. It provides a scoring model and process which leads to a mixed score between enabler and results criteria. The single criteria are weighed - a fact that poses a problem, as such an evaluation is always subjective and brings no objective result. (See 4. Holistic Measurement of Intellectual Capital)

52. One of the advantages of the EFQM Model is the fact that it is used for internal management as well as external reporting and measuring purposes.

#### *The Enabler Criteria:*

53. Each of the parts of the Enablers criteria are scored on “approach” and “deployment”.

54. **Approach** deals with the methods used to address the criterion parts, and will be judged on several specific items.

55. **Deployment** is the extent to which the criterion parts have been implemented, and scores will be giving according to the level at which the approach is developed vertically and horizontally – in all relevant processes, and to all relevant products and services.

#### *The Results Criteria:*

56. Each of the parts of the Results criteria is scored on “results” (level of excellence), and “scope” of the results presented.

57. The level of excellence of **results** will be judged on the presence of:

- positive trends and/or sustained good performance
- comparisons with your own internal targets
- comparisons with external organisations (competitors and best in class)
- evidence that good results are caused by your own endeavours.

58. The **scope** of results will take account of:

- the extent to which the results cover all relevant areas of your activities
- the extent to which a full range of results, relevant to the criterion part, are presented and that there is a rationale for their choice.

59. The EFQM Model contains nine boxes representing the criteria used to assess an organisation's progress toward excellence.

60. The “Enablers” are divided into five different criteria with a maximum of 500 points (50%). The “Results” are represented by four criteria also with a maximum of 500 points (50%). The different maximum points/percentages indicate the criterion's relative importance to the whole.

Enabler criteria:

Leadership:	100 points (10%)
People Management:	90 points (9%)
Strategy & Planning:	80 points (8%)
Resources:	90 points (9%)
Quality System & Processes	140 points (14%)
	Subtotal Enabler : 500 points (50%)

Results criteria:

People Satisfaction:	90 points (9%)
Customer Satisfaction:	200 points (20%)
Impact on Society:	60 points (6%)
Business Results:	150 points (15%)
	Subtotal Results : 500 points (50%)

Total all criteria: 1000 points(100%)

61. Although this model does not explicitly express IC, it contains some important elements as there are human capital, stakeholder relationship, structural capital and the deployment process of information to create knowledge.

62. The major problem with this model is its measurement method. To add scores of interdependent criteria does not reflect the interrelationship between them. Therefore Knapp<sup>13</sup> developed an alternative model which provides a solution for interdependent performance, structural and intellectual enabler criteria measurement.

#### 4. THE HOLISTIC MEASUREMENT OF INTELLECTUAL CAPITAL

63. Holistic in this context is defined as multiple-dimensional, including all perspectives and disciplines of an organisation, and sustainable. As mentioned above, there is a need to find some independent indicators of IC, which can be used for internal managing and external reporting purposes.

64. A holistic IC-indicator should be able to meet benchmarking requirements for all kinds of organisations and sizes.

65. The key method of the Holistic Measurement Concept (Knapp 1999) is based on the fact, that the indicators of IC-elements cannot be added or summarised like in the EFQM Model but should be multiplied with one another. Even if the real relationships between the measuring elements are more complex it should be a significant improvement to the EFQM Model. The reason for this multiplying approach lies in the interdependent nature of interrelated processes and structures. The bottleneck-approach is one aspect of this problem. The weakest performance in a value creation chain dictates the pace and overall performance of the whole supply chain. The **Holistic Measurement of Intellectual Capital-Model (HM-IC)** includes interrelated **Measurement Elements (ME)** for organisation, structure and management as well as intellectual, social and emotional development processes.

66. **Organisational, structural and managing Measuring Elements (ME)** of IC are:

- Holistic Customer and Market-oriented Leadership
- Holistic Development of Vision, Mission, Roles and Strategy
- Vital Organisation for Implementation (of Vision, Mission, Roles, Strategy)
- Holistic Business Controlling and Resource Management
- Holistic Process and Quality Management
- Holistic Compensation and Personnel Development
- Holistic Customer Service and Management
- Holistic Supplier and Partner Management
- Holistic Innovation and Product Management
- Holistic Communication, Information and Knowledge Management
- Holistic Change and Growth Management
- Environment Management and Public Relations

67. **Intellectual, social and emotional Measuring Elements (ME) of IC are:**

- Integrity
- Intention
- Intuition
- Inspiration

68. Each ME of HM-IC must be measured and scored against specific criteria (Knapp 1999) and the result describes the current status as a percentage of its full capacity or potential as an **Element Performance Indicator (EPI)** needed for the whole organisation to fulfil its mission to create stakeholder and shareholder value.

69. These EPIs are the basis of higher aggregated indicators which are described as follows (compare diagram 3) :

**HICI:** Holistic Intellectual Capital Indicator

**HDI:** Holistic Development Indicator

**HPI:** Holistic Performance Indicator

**HOI:** Holistic Organisation Indicator

**HII:** Holistic Intelligence Indicator

**DI:** Dynamic Indicator

**YI:** Integrity Indicator

**EI:** Intention Indicator

**UI:** Intuition Indicator

**II:** Inspiration Indicator

$$\text{HICI} = \text{HPI} \times \text{HDI}$$

$$\text{HDI} = \text{DI} \times \text{HPI}$$

$$\text{DI} = \eta = \lambda \times \mu \quad (\lambda = \tan \alpha; \alpha : \text{see diagram 1}; \mu = \tan \beta; \beta : \text{see diagram 2})$$

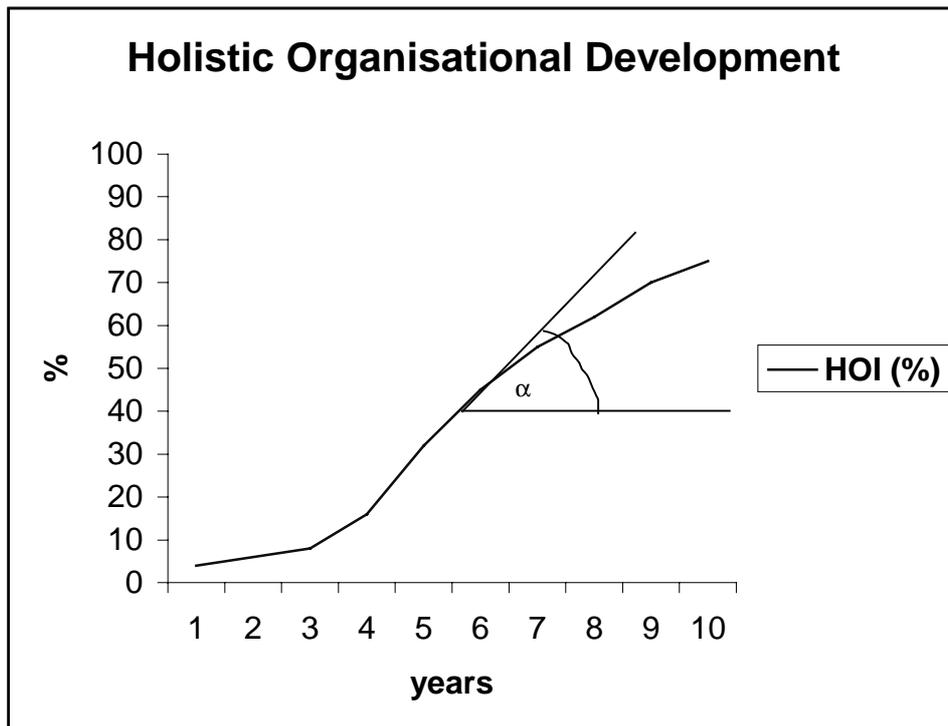
**DI** can be expressed by  $\eta$ , that in turn is determined by  $\lambda$  and  $\mu$ .

$\lambda$  and  $\mu$  are gradients of the holistic organisational and intelligence increase as demonstrated in the diagrams 1 and 2 below (which are examples only). These two gradients express the speed of change of an organisation.

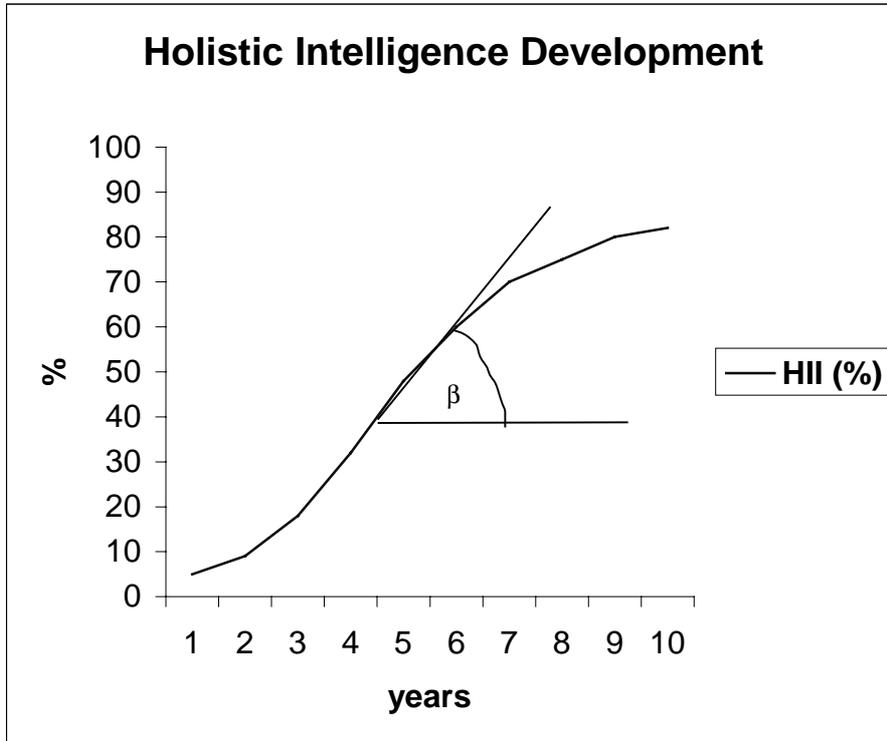
The **Dynamic Indicator** ( $DI = \eta$ ), which is the mathematical product of both, could become very interesting for shareholders because they are interested not only in dividends but also in value added business growth if reflected in stock value increase.

The relationship between the DI- and stock development graph of organisations has to be investigated more deeply to verify the above statement.

**Diagram 1: Holistic Organisational Development**



**Diagram 2: Holistic Intelligence Development**



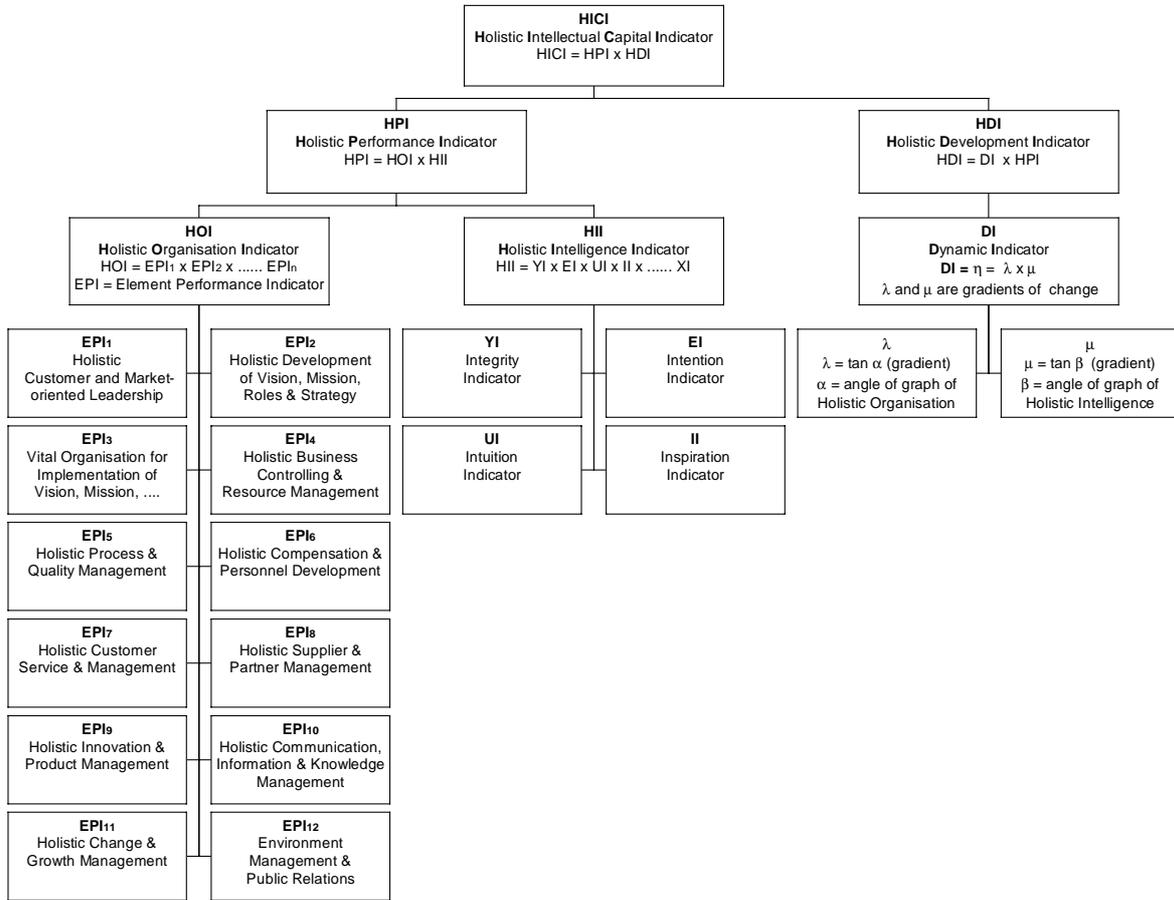
$$\mathbf{HPI = HOI \times HII}$$

$$\mathbf{HOI = EPI_1 \times EPI_2 \times \dots \times EPI_n}$$

$$\mathbf{HII = YI \times EI \times UI \times II \times \dots \times XI}$$

70. These hierarchical indicators explain the structure of the measurement process and show the complexity of organisational, managing and development relationships. This model can vary the number of Measurement Elements (MEs) according to the structure and kind of organisation without losing its compatibility within the higher indicators. This fulfils the requirement of internal managing as well as external reporting purposes.

**Diagram 3: LIAHONA-HOMES Scheme (Knapp 1999)**



71. For **external reporting** purposes, the higher indicators should be sufficient:

**HICI, HDI, HPI, (HOI, HII, DI)**

72. These indicators are aggregated enough to prevent diffusion of internal information (= information that has an impact on the competitive position, the “know how” to solve certain problems), but still offer valuable insights for the shareholder (comparable to the income statement).

73. The **internal managing process** could be controlled by additional use of the less hierarchical indicators as there are:

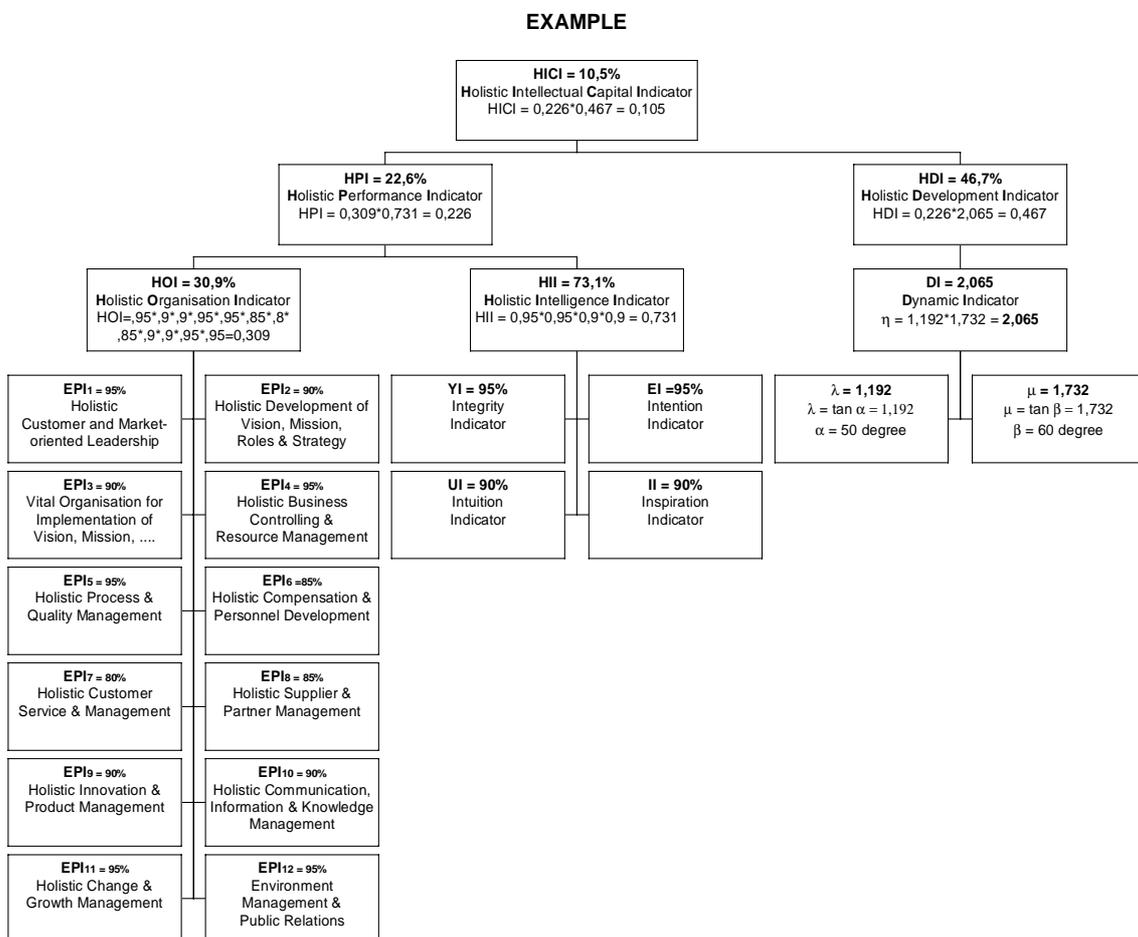
**(HOI, HII, DI), EPI’s, YI, EI, UI, II**

74. The following example (see Diagram 4) shows the measurement results of a high performing organisation, even when the HICI-score seems very low at the first glance. The low score indicates that there is a tremendous unused potential in most organisations. If we are able to increase every single process by 10% the total performance increase can amount to 400%.

75. One of the most significant figures for developing effective IC is the DI (Dynamic Indicator). It explains the reason why the smaller and fast developing organisations compete successfully with large and slow changing companies.

76. One of the most promising alternative to combine the advantages of small and large organisations is a “client server”-organisation. This type of organisation is defined here as small or medium sized competent and interdependent company within a larger network of a holding organisation, responsible for funding (stock market), marketing, stake- and shareholder management. The “client server”-organisation leads to customer and result-oriented organisations and processes instead of satisfying the internal boss only. The development and effective use of holistic knowledge through efficient information management as well as intelligently and personal communication processes will be a key success factor.

**Diagram 4: Example for the LIAHONA-HOMES Scheme**



## 5. EMPIRICAL PART

77. In the third part, we would like to concentrate on the empirical work and analyse estimates from practitioners to evaluate the assumptions concerning a) the acceptance of IC by practitioners and b) its implementation in the operative management of Austrian companies. This study was conducted in co-operation between FH Joanneum, Fachhochschulstudiengang Industrierwirtschaft, Kapfenberg; Ernst & Young Consulting, Vienna; and the Karl Franzens University of Graz (KFUG), Department of International Management, and it is based upon the following findings of the Ernst & Young study “Measures that Matter” about the utility of non-financial metrics for operating performance and the uncertainty of the value relevance:

- Institutional Investors value the future earnings of companies up to 60% via non-financial measures
- The employees' Knowledge, Skills and Motivation becomes more and more important
- In certain (knowledge-intensive) industries and companies, where qualification and entrepreneurial spirit of the employees and their knowledge are crucial for company success.
- Most of the managers are familiar with these assumptions, but only very few act accordingly.

78. This study focused not on investors but on management's point of view: if management attention could be drawn onto non-financial metrics, eventually (financial) performance might increase too. Thus, in order to be able to recommend “best practices”, CEOs and Top Management were confronted with a similar questionnaire like the previous survey to get data from the investor's point of view.

79. Like Mavrinac and Siesfield we share the opinion that financial measures are necessary for positive enterprise development. The Perlitz 1995 study on Business Process Reengineering (Perlitz et al. 1995) supports the fact that there is an interdependent relationship between hard and soft facts and that both have a balanced influence on business excellence, performance and development. The main conclusion from this empirical study is the importance of internal and external customer relationship combined with a holistic approach of business process design. The difference to common opinion is the fact that customer and result-oriented leadership leads to significant better results in enterprise development than people-oriented models.

80. The process of creating effective business knowledge is based on the following criteria:

- interactive information exchange: de-central, effective and fast order processing for customer satisfaction
- active, open, fair, direct, holistic (including the whole organisation) and consistent communication processes
- team and personal communication

81. It seems that these criteria, combined with a controlling system which provides actual information about internal and external customer results, are the main enablers of business improvement processes. Intellectual Capital in this sense is the result of continuous information and communication processes between internal and external customers. (see Holistic Measurement of Intellectual Capital above)

82. The intents of these studies were:

- To reveal management awareness of non-financial measures
- Find out about “best practices” on the topic of Human Resource development and management of intangible assets in operative management with the help of structured interviews
- Identification of crucial success factors for a positive company development
- Comparison of small and medium sized Austrian companies in relation to global players

83. Additionally, we wanted to test the following **hypothesis**:

1. “Is there a relation between continuing job related education in the context of human capital development and a positive company development?”
2. Does active management of IC or at least an awareness of the problems concerning IC make any difference on financial success?

84. This study should contribute both to policy debates on macro level (what can governmental institutions do to improve the business environment?) and to managerial development of improved performance measurement on micro level.

**Methodology:**

85. Findings are based on several sources of data (annual reports, conferences, interviews), and most important, a 6 page 50 question mailed company survey instrument with 650 questionnaires and a return number of 45 of which 40 could be used for interpretation. Those returning the questionnaire represent an average sample of companies from all sizes and different industries. Contrary to the Ernst & Young study, the mean size of the companies is relatively small (see Table 5), 200 billion ATS (= 14,5 billion Euro) of annual sales in 1997, so our findings might contribute complementary information.

**Table 5: Number of employees in this survey**

Number of employees 1997	
0 – 500	16
500 - 1.000	4
1.000 - 2.000	6
2.000 - 5.000	4
5.000 - 10.000	2
> 10.000	4
No answer	4

86. Similar to the Ernst & Young Study, the survey data interpretation is constrained by the fact that they are partly based on corporate financial figures, where not readily available on expert estimates, and - especially in the non-financial part - solely upon stated preferences and subjective attitudes of the persons answering the questionnaire.

87. According to the financial data provided by the companies (sales, revenues and cash flow), the participating companies were divided in "successful" companies and "less successful" companies. Those companies, that managed to increase sales, revenues and cash flow simultaneously over a period from 1995 until 1997 (planned figures for 1998), were categorised as "successful".<sup>14</sup> Eleven companies were classified as successful, fifteen companies as "less successful" (i.e. decreasing sales, decreasing revenues, and decreasing cash flow). The remaining fourteen companies did not provide enough numbers concerning sales, revenues, and cash flow and consequently were not considered for the interpretation of those questions that discriminate between successful and less successful. For this paper, we only interpreted those points of the questionnaire with special relation to Knowledge, Intellectual Capital and Intangible Assets.

88. Based on the above mentioned classification, the following results were obtained:

89. The comparison of our survey with the Mavrinac and Siesfield study (1996) (see Table 6) showed the following similarities concerning the importance of several indicators ranked by a) investors in international companies and b) CEOs or top management executives estimates of Austrian companies. It is important to mention that the Mavrinac and Siesfield scores are based on a 1-7 Likert scale, while ours represent the mean position between 1 and 20 of any of the indicators subjectively weighted by management.

**Table 6: Comparison with the Mavrinc and Siesfield results**

Measurement type <sup>15</sup>	Rank E&Y **	Rank KFUG
Execution of corporate strategy	1	3
Management credibility	2	11
Quality of corporate strategy	3	4
Innovativeness	4	7
Ability to attract employees	5	6
Market share	6	8
management experience	7	9
Quality of compensation Policies	8	17
Research leadership	9	16
Quality processes	10	5
Customer satisfaction	11	1
Quality of guidance	12	-
Employee turnover rates	13	-
Experience of IT personnel	14	-
Number of customer complaints	15	-
Quality of customer service department	16	-
Quality of published materials	17	-
Product quality awards	18	20
Process quality awards	19	-
Environmental and social policies	20	-
Use of employee teams	21	-
Compensation ratios	22	-
Quality of corporate vision	-	12
New products to sales ratio	-	13
Product to market time	-	14
Brand image	-	10
Marketing and advertising	-	15
Management compensation based on MVA		19
Quality perceived by the customer	-	2
Repurchase ratio	-	18

90. The most remarkable differences is customer satisfaction that was rated in Austria as the most important issue, while it holds only the 10<sup>th</sup> rank in the E & Y rating. Quality of compensation policies was ranked considerably lower (rank 17 of 20) and might be explained by rigid collective payment schemes, that are relevant for the vast majority of employees. Research leadership is treated with less care in Austrian companies, and this is corresponding with other studies.<sup>16</sup>

91. Another difference is management credibility, which seems to be of lower importance in Austria - explainable via the compared to Anglo - American influenced companies different structured trade law, that holds top management responsible for their strategic and operative decisions.

92. We found supporting evidence for the findings of Mavrinc and Siesfield, that measures of strategy implementation, market share, the firm's ability to "attract and retain talented people" and innovativeness are crucial.

93. The rest of the survey data is now reported in the structure of intellectual capital (general issues), human capital (the major part), stakeholder relations and structural capital.

94. 88% of all participating companies value the importance of **intellectual capital** for company success as “high” or “increasing”. About 60% of the companies said that they are currently not measuring their explicit and implicit knowledge. About half of the companies who claimed to manage their explicit and implicit knowledge, said they were using knowledge databases. About one quarter said knowledge networks were in use. This leads to the assumption, that awareness of the topic of intellectual capital is growing, although clear concepts are not widely perceived.

**95. Human capital measures** are more often used in “successful” companies than in “less successful” ones. Two thirds of the “successful” companies reported to plan their Human Capital development measures for two to five years, 20% stated to plan for up to two years. In contrast, of the “less successful” companies, one third claimed to plan up to two years, 40% plan for two to five years, and 20% stated not to have any human resource development plans at all or did not provide any data.

96. Successful companies seem to monitor their human capital resources more careful than others.

97. One third of the “less successful” companies do not have any transparent **career development plans** for newly hired employees. From the companies rated as “successful”, only 20% lacked such plans.

98. This supports the assumption that career paths and development curricula a) correlate with financial performance and b) such programs support the flow of knowledge from the current job holder to his successor and c) enables innovation within the company.

99. 94% of the companies rated as “successful” do have regularly reviewed **performance objectives** and agreements for employees and their external or internal customers, while about one third of “less successful” companies do not have any performance agreements.

100. This leads to the assumption, that successful companies stress clear performance objectives and strong stakeholder relations.

101. “Successful” companies evaluate **employee performance** more often and more intensively than “less successful” companies. About 65% of the “successful” companies have them once a year, a further 15% on demand, whereas only one third of the “less successful” companies carry out such evaluations annually, a further 40% have them on demand, and an additional 20% do not have any such evaluations at all.

102. In the Knowledge Economy, flexible work time schemes are heavily promoted. In 90% of the “successful” companies, employees do have flexible times while almost half of the “less successful” companies do not have them.

103. 43% of the “less successful” companies **recruit** their top management externally, 22% internally, while 15% of the “successful” companies recruit their top management externally, 31% internally. For middle-management positions and the operational level, differences between “successful” and “less successful” companies were not that significant.

104. More than two third of the “successful” companies claimed to have **profit sharing schemes**, whereas more than half of the “less successful” companies said not to have such incentives. This indicates a more stakeholder oriented approach of the successful companies.

105. More than half of the “less successful” companies claimed that their customers value quality of service and price, and that only 11% of their **customers value innovation**. In “successful” companies' answers, quality and service accounted for about one third, product quality and innovation accounted for more than half of the answers.

106. 91% of the “successful” companies said that the **working climate and corporate culture** were “high” and “average” respectively. This was valid only in 80% of the “less successful” companies.

107. 92% of the “successful” companies claimed to have **informal communication**, whereas this was the case in only 75% of the “less successful” companies with an additional 19% stating formal communication.

108. In both the “successful” and “less successful” groups, more than 80% of the companies claimed to have a **corporate vision**. This vision was developed by management in more than half of the “less successful” companies, and developed by top-management and management in two thirds of the “successful” companies.

109. The domination of top management at developing the corporate vision allows further insight about the real stakeholder orientation and reveals that a lot of the “progressive” leadership slogans are not yet really implemented in daily management routines.

110. Approximately three quarters of the companies say they have **market strategies**. Those strategies are adjusted at least once a year by more than 70% of the “successful” companies. About half of the “less successful” companies adjust their strategies once a year, while another third of “less successful” companies adjust their strategies even less frequently.

111. Again, we sense a discrepancy between the desired customer orientation and reality, which is characterised by lack of adjustment loops.

112. About half of the “successful” companies **co-operate** with their **suppliers** for between five and ten years, 45% co-operate for more than ten years. In contrast, 60% of the “less successful” companies co-operate for more than ten years with their suppliers and only one third co-operate between five and ten years. The reason for this might not necessarily be quality, but also not negotiated discounts etc. Another reason might be the slack and comfort provided by long term agreements; as we interpret from the data available, the long term contracts are not used to establish profitable (win-win) relationships for common development, but are abused by one party to charge premiums on the dependency of the demand side...

113. “Less successful” companies tend to adjust their market strategies less frequently than “successful” companies and they tend to co-operate longer with their suppliers.

### **Findings:**

114. We found supporting evidence for the findings of Mavrincac and Siesfield, that measures of strategy implementation, market share, the firm's ability to “attract and retain talented people” and innovativeness are crucial. Our findings lead to the assumption that awareness of the topic of intellectual capital is growing, although clear concepts are not widely perceived. Successful companies seem to monitor their human capital resources more carefully than others. The findings suggest that career paths and development curricula a) correlate with financial performance and b) such programs support the flow of knowledge from the current job holder to his successor and c) enables innovation within the company. The survey shows that successful companies stress clear performance objectives and strong stakeholder relations.

115. Summing up, it can be stated that “successful” companies are the more flexible ones, they facilitate information and knowledge flow, they encourage (not necessarily explicitly) employees to contribute to company success. They tend not to have too tight work time schemes, they monitor the employees' performance carefully and care more about the employees' development and they tend to recruit more internally than externally. They have a better working climate than “less successful” companies, they have profit sharing schemes and use more likely human capital measures.

116. All these findings support the hypothesis that assessing, monitoring and development of all factors of Intellectual Capital, Human Capital, Structural Capital and Stakeholder relations within the company is strongly related to corporate success. “Successful” companies manage their Intellectual Capital better than “less successful” ones.

## 6. SUMMARY:

117. In the beginning of this paper on the Holistic Measurement of Intellectual Capital, the objectives of measurement were discussed briefly concluding with the necessity of different approaches for internal and external reporting. Following this, we discussed that there is much less difference between conventional accounting of physical assets and the accounting of intangibles than suggested by some sources in the literature. Legally we are forced to use a depreciation concept in conventional accounting and will probably have to apply this to the accounting of intangibles as well. But, investors have always been interested in the potential of an asset (a configuration of assets to be precise) to generate future income. This interest is reinforced in a knowledge economy with no material input base to such potentials.

118. Most models on the measuring of intangibles, though, will not only keep book of intangible inputs like we did with tangible inputs. They aim more at the management of intangibles and try to develop detailed models of overall management with a special focus on the process of knowing. Those attempts are encouraged by the changing ratio of value contribution of intangibles and by the enabling capacities of new technologies to keep track of the knowledge flow along the value chain.

119. From the past we learned that it is important to develop and maintain standards for external reporting to allow comparisons for the stakeholders. But without a convincing and implemented strategy and a tailor-made internal reporting system that supports decision making, it would fail to contribute to increase the value creation potential of the organisation.

120. We discussed the standards of IC accounting developed so far and covered beside the well known balanced score card approaches an alternative concept, that relies on buffers. Additionally, we referred to the already broadly used EFQM Model, that is no reporting instrument in itself, but provides the basis for a holistic oriented management and reporting instrument, the LIAHONA-HOMES model. Contrary to the EFQM model, which relies on defined standards to weight certain elements of enabling and resulting factors that are connected linearly, the LIAHONA-HOMES model is able to tackle the dynamic character of business development by combining the variety of performance - influencing factors of an organisation in a multiplicative way. The concept allows to evaluate the current corporate performance in relation to its potential and it is based on self assessment.

121. The feasibility and robustness of the currently discussed indicators for Intellectual Capital was discussed in relation to the different modes of measuring, the criteria for IC measures, epistemological approaches and the nature of Intellectual Resources.

122. In the empirical part of the paper, a survey on the awareness of the topic amongst management in Austria was analysed to find out about best practices. The survey was compared to the findings of Mavrincac and Siesfield, and concludes with a support of their findings in almost every aspect. Their restriction of the findings to large and internationally oriented organisations seems not be necessary, since our sample represents a complementary population. Our hypotheses that companies actively supporting the development of their intellectual capital are performing better than those that do not manage their IC, was supported.

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## ENDNOTES

- 1 For further discussion refer to e.g. OECD: The Knowledge based economy 1996
- 2 For the time being we will use the concepts of intangibles and intellectual capital interchangeably. Their distinction will be made clear in further chapters of this paper.
- 3 Like it was suggested by Sveiby or Roos to mention only two.
- 4 The OECD Job Strategy, Technology, Productivity and Job Creation: Best policy Practices. 1996 P 21
- 5 A notable Balanced Scorecard based initiative was started by the Federal Government of Styria, in 1998 with the goal to develop a set of indicators to monitor the intellectual capital of the region.
- 6 Pauli: <http://www.oestat.gv.at/indexde.htm>
- 7 see Austrian Handelsgesetzbuch HGB § 198.
- 8 All forms of slavery are abolished for good reasons - so it will be difficult to “own” ideas or creativity of employees, to mention only one example.
- 9 Classical criteria have been questioned by constructivist approaches (see Table 2). We will not take up that discussion here. If we measure, they are crucial.
- 10 One can easily see, that absenteeism is not always valid as an indicator. Other influences (such as epidemic diseases) can be important.
- 11 Knapp, 1999 Liahona-Homes: Holistic Learning & Leading Compass for Organisation, Management, Education & Services
- 12 EFQM: The European Foundation for Quality Management is a not-for-profit membership organisation dedicated to promoting Total Quality Management as the way to Business Excellence. The EFQM's mission is to be the driving force for sustainable Business Excellence in Europe; its vision is a world in which Europe excels.
- 13 Knapp, Liahona-Holistic Enterprise Compass, 1999.
- 14 Here, “successful” is still derived from financial measures. This is no contradiction to the search for “non-financial measures, as financial capital is - as other forms of capital - a major resource. The claim to non-financial measures is still valid, alternative indicators are highly desired. We obeyed to this definition of “success”, because a) it is commonly agreed by financial markets and b) we did not find an alternative that was applicable on our survey data.
- 15 \*\* please notice the different scales: E&Y 1 -7; KFUG 1 - 20.
- 16 OECD: The Knowledge based Economy 1996