Intellectual capital.

Jan Mouritsen & Per N. Bukh
Copenhagen Business School; Aarhus School of Business

Intellectual capital (IC) is concerned with intangible assets, which are suggested as becoming more and more important in the knowledge economy. Distinguishing itself from financial capital and tangible assets, IC is generally 'composed' by human capital and structural (organisational capital and customer capital) and the relationships between them. Generally, the importance of IC has often been illustrated as interesting because it can help 'explain' the difference between market values and book values of a company. This explanations should not be taken too seriously, but it justifies figure one, which depicts the breakdown of marked value in financial and intellectual capital, and more importantly the breakdown of IC into components of human and structural (organisational and customer) capital.

Figure 1: The breakdown of market value in financial and intellectual capital

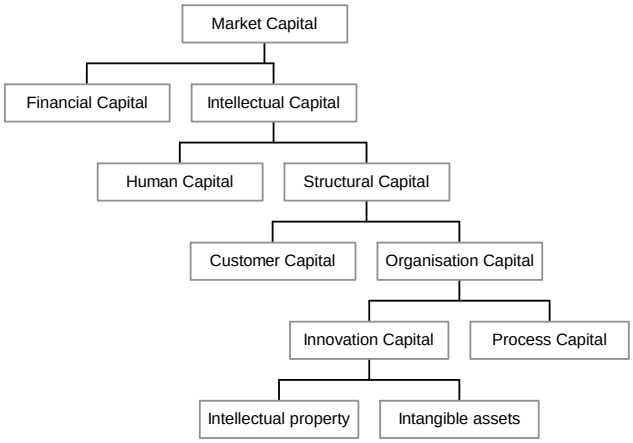

Figure one is the model around which most intellectual capital research organises itself. The elements mean different things to many researchers and there is discussion about how they relate to each other. Key definitions are presented in table one.

Table 1: Key definitions of IC components

	Human capital	Organisational capital	Customer capital
Karl Erik Sveiby[1]	'involves capacity to act in a wide variety of situations to create both tangible and intangible assets'	'Internal structure includes patens, concepts, models, and computer and administrative systems'	'The external structure includes relationships with customers and suppliers. It also encompasses brand names, trademarks, and the company's reputation or image'
Thomas Stewart[2]	[m]oney talks, but it does not think; machines perform, often better than any human being can, but do not invent .. [the] primary purpose of human capital is innovation - whether of new products and services, or of improving in business processes'	'knowledge that doesn't go home at night .. [I]t belongs to the organization as a whole. It can be reproduced and shared … technologies, inventions, data, publications, … [and] strategy and culture, structures and systems, organizational routines and procedures ..'	is 'the value of its franchise, its ongoing relationships with the people or organizations to which it sells … [like] market share, customer retention and defection rates, and per customer profitability'
Leif Edvinsson and Michael Malone[3]	'combined knowledge, skill, innovativeness and ability of the company's individual employees… it also includes the company's values, culture, and philosophy. The company cannot own human capital'	'hardware, software, databases, organizational structure, patents trademarks, and everything else of organizational capability that supports those employees' productivity … [It is] everything left at the office when the employees go home… Unlike human capital, structural capital can be owned and thereby traded'	

The definitions disclosed in table 1 show that the IC objects are containers of assets important to the firm but typically not reported in (external) accounting systems. People's capacity and motivation to act, their innovative capabilities, and skills and competencies are the objects of human capital. IT systems, concepts, patents, organisational procedures and knowledge that do not go home at night are examples of organisational capital. And relationships with customers, brands and image are customer capital. IC is the product of these factors, as it is established as the linkages between the components human and structural capital.

This definition has appeal because it can be neatly expressed as in the drawing in figure 1, but obviously looking at table 1, there is not simple mathematical way in which the objects in these components can easily be added together to get at a value. The template of IC in figure one is a starting point to investigate intellectual capital rather than a conclusion.

Research agendas in IC Reporting

Three distinct research agendas can be identified in IC.[4] *The first agenda* is concerned to measure the components of IC. The experiences of the insurance company Skandia have been pivotal here (largely due to the efforts of Leif Edvinsson, then IC director), who developed a series of indicators to account for renewal (with a view to 'tomorrow'), for customers and processes (with a view to 'today') and financial results (with a view to 'yesterday'). All these are connected through human focus.[5] The Skandia framework is presented in Table 2.

---

[1] Sveiby, K.E. The New Organizational Wealth: Managing and Measuring Knowledge-based Assets, Berrett-Koehler, San Francisco, 1997

[2] Stewart, T.A. Intellectual Capital London: Nicholas Brealey Publishing, 1997

[3] Edvinsson, L. & Malone, M.S., Intellectual Capital London: Piatkus, 1997

[4] Fincham, R. & Roslender, R., The Management of Intellectual Capital and its Implications for Business Reporting The Institute of Chartered Accountants of Scotland, 2003

[5] For a review of a series of measurement approaches, see Petty, R. & Guthrie, J., Intellectual Capital Literature Review: Measurement, Reporting and Management", Journal of Intellectual Capital, 2000, pp. 155-176

Table 2: Skandia's indicators

	American Skandia	Skandia Real Estate	Skandiabanken	Skandia Life UK Group	Dial	Skandialink
Financial Focus	• Return on capital employed • Operating result • Value adding / employee	• Direct yield • Net operating income • Market value • Total yield	• Operating income • Income / expense ratio • Capital ratio	• Return on capital employed • Operating result • Assets under management	• Gross premiums written • Gross premiums written / employee	• Gross premiums written • Operating result • Assets under management
Customer Focus	• # contracts • Savings/contract • Surrender ratio • Points of sale	• Customer satisfaction index • Average lease • Average rent • Telephone accessibility	• # customers	• # contracts • Savings / contract • Service awards	• Telephone accessibility • # individual policies • Customer satisfaction index	• # contracts • Surrender rate
Human Focus	• # employees • # manager • Of whom, women • Training expense / employee	• Human capital index • Employee turnover • Average years of service with company • College graduates / total number of staff	• Average # employees • Of whom, women	• # employees	• Average age • # employees • Time in training	• # employees • Human capital index • Share employees with secondary education or higher • Share of employees with 3 or more years of service
Process Focus	• # contracts / employee • Adm. expense/ gross premiums written • IT expense/ admin. Expense	• Occupancy rate • Financial occupancy rate • Net operating income / sq. m. • Cost per sp. M.	• Payroll costs / administrative expenses	• # contracts / employee	• IT-employees / total number of employees	• Administrative expenses / gross premiums written • IT-expense / administrative expense
Renewal & Development Focus	• Share of gross premiums written from new launches • Increase in net premiums written • Development expense / Adm. exp. • Share of staff under 40 years	• Property turnover : purchases • Property turnover : sales • Change and development of existing holdings • Training expenses / administrative expense	• Total assets • Share of new customers • Deposits and borrowing, general public • Lending and leasing • Net asset value of funds	• Increase in net premiums, new sales • Pension products, share of new sales • Increase in assets under management	• Increase in gross premiums written • Share of direct payments in claims assessment systems • Number of ideas filed with Idea Group	• # contracts / employee • Fund switches via Telelink • Fund switches via Internet

Table two illustrates the ambition to find indicators that can stand for IC, but it is clear that they do not aggregate neatly into a number for the value of IC, and therefore figure one is a little misleading. In contrast, it indicators thus presented are loosely coupled and are expressions of very different things. It is not clear how it should be possible to conclude on this material.

There are two responses to this problem. One is *the second research agenda* which attempts to related various indicators to effects. The attempt is to develop a causal model of how IC is valuable. For example, Lev's Value Chain Scorecard [6] links Discovery and Learning, Implementation and Commercialization (see table three).

Table 3: Value Chain Scorecard

Discovery & Learning	Implementation	Commercialisation
Internal renewal • Research and development • Workforce training and development • Organisational capital processes	Intellectual property • Patents, trademarks and copyrights • Licensing agreements • Coded know-how	Customers • Marketing alliances • Brand values • Customer churn and value • Online sales
Acquired capabilities • Technology purchase • Spill over utilisation • Capital expenditures	Technological feasibility • Clinical tests, food and drug administration approvals • Beta tests, working pilots • First mover	Performance • Revenues, earnings and market share • Innovation revenues • Patent and know how royalties • Knowledge earnings and assets
Networking • R&D alliances and joint ventures • Supplier and customer integration • Communities of practice	Internet • Threshold traffic • Online purchases • Major internet alliances	Growth prospects • Product pipeline and launch dates • Expected efficiencies and savings • Planned initiatives • Expected breakeven and cash burn rate

This scorecard says that discovery and learning has to come before implementation, which again has to precede commercialisation. This scorecard subordinates the IC components of Skandia's IC report to the flow of knowledge development and application in the firm. And the firm modelling this relationship is one of high R&D intensity and a place in the new economy. Here is not special room for human capital which was essential to Skandia, and there is much more focus on the formal processes of knowledge generation. All the elements of the value chain scorecard are related, but still not as an additive model. It is a structural model that (potentially) can be estimated by statistical means. So, it is not accounting model; it is a functional model.

A *third agenda in IC research* also attempts to link measurements, not by providing the statistical model that will link them together but through a strategic approach where indicators are made relevant through narratives. One form is to explicitly show how strategic models link to measurement[7], which is useful but often cloaked in heave competency theory where it is not always

[6] Lev, B., Intangibles: Management, Measurement and Reporting Newe York Brookings Institute, 2001
[7] See e.g. Roos et al op.cit.

clear what goes on. More direct is the narrative approach to IC, which suggests that the indicators may be grouped in accounting categories such as employees, customers, processes and technology if this is what the observable transactions are about. But these categories have to be connected and this is possible only through interpretation that is laid out in a narrative form.[8] The narrative is important because it lays out the firm's interpretation of how the network of knowledge resources contributes to the user. Like the value chain scorecard, the narrative lays out the sequence of activities that make knowledge resources productive, but it also specifically interprets how the firm specifically assembles, upgrades and managers knowledge resources towards the purpose that they are to serve. And typically this purpose is related to a user.

Table four shows how IC can be a set of indicators, that reflect upon a series of efforts/initiatives and which are connected in a narrative form, and where the user is pivotal.

Table 4: IC as narrative

Knowledge narrative	**Management challenges and efforts /initiatives**	**IC reporting / IC statement**
A *knowledge narrative* expresses the company's ambition to increase the value a user receives from a company's goods or services. The knowledge narrative shows which knowledge resources are required to create the use value the company wants to supply. This ambition establishes a narrative because it merges the user's and the company's knowledge resources. The knowledge narrative argues for how knowledge is supposed to lead to improvements for a user	A set of (knowledge) *management challenges* highlights the knowledge resources that need to be strengthened through in-house development or through external sourcing. This can be achieved by intensifying co-operation with innovative customers, by developing greater expertise in specific fields or by acquiring better insight into the company's control processes. Management challenges such as these have a certain degree of permanence over time.	The IC report can be internally or externally oriented. It has a set of indicators, which make it possible to monitor whether the initiatives have been launched or whether the management challenges are being met. Some indicators are directly related to specific initiatives such as 'training days' or 'amounts invested in IT'. Others are related only indirectly to specific initiatives such as 'number of R&D consultants' or 'newly appointed software engineers
• What product or service does the company provide? • What makes a difference for the consumer? • What knowledge resources are necessary to be able to supply the product or service? • What is the relationship between value and knowledge resources?	• 'A knowledge business model' which explains how knowledge flows in the firm, which objects knowledge is connected to, and how these knowledge resources are to be managed. • A set of efforts that are inputs to relaxing the constraints of the business model of knowledge. These efforts are typically related to employees, customers, processes and technologies	• Portfolio indicators reflect the composition of knowledge resources. Over time they convey the development in types of knowledge resources • Activity indicators reflect the firm's investment in upgrading knowledge resources. They concern the firm's qualifying activities. • Effect indicators show whether knowledge resources have interesting consequences.

All three research agendas attempt to make sense of IC. It is acknowledged that somehow knowledge and intellectual capital are part of the constitution of IC but there is still uncertainty as to

[8] Mouritsen, J., Bukh, P.N. et al. Intellectual Capital Statements – The New Guideline Copenhagen, Ministry of Science, Innovation and Technology, 2003, www.vtu.dk/icaccounts, www.cbs.dk/staff/jan.mouritsen)

how IC actually works. And there is uncertainty about how it may be possible to audit both the indicators of an IC report and its content. These are challenges to their general acceptability.

The individual and the collectivity

There is a concern with the individual in IC. It is not clear what character it is. Some suggest that it is the creative source of all innovation[9] and therefore the IC problem has to centre on the person in whose head value resides. Here, the role of structural capital is to support the individual and allow individuality and creativity to flourish. The individual has the power.

Accepting the importance of the individual, others take a more critical stance, because it tends to be ironic that people, if they are so important, are not allowed to speak for themselves but only as types in an IC report[10]. There is an irony in incorporating individuals, because they turn out to be resources more than actors. This may mean that IC pays more lip service to the importance of the individual than is acknowledged in most of the literature on IC. There is a schism because on the one hand managers may want employees to be creative and thus want them to be 'free' to reflect, but there is a limit to creativity, because it is also a disruption and may cause inefficiencies to occur. There is a schism between creativity (exploration of new knowledge) and coordination (exploitation of existing knowledge) that may make managers think creativity is a good thing – as long as it is within limits.

It may be that people are only interesting to a certain degree. It may be that corporate competencies are more important than individual ones[11]. Corporate competencies are bundles of skills, technologies and directed creativity, and therefore for a firm to cohere, structural capital may be more interesting than human capital.

Conclusion

IC opens for a discussion about the worth of intangible resources or knowledge resources. The concern is about the relationships between management and measurement on the one side and about the individual and the collectivity on the other. Much research lies ahead to untangle those two relationships; and much political interest has to be mobilised if a reporting of intangible resources is to be a medium in constructing the knowledge based firm and the knowledge based capital market.

[9] E.g. Stewart op.cit. and Edvinsson & Malone, op.cit.; and see Nonaka, I. & Takeuchi, H. The Knowledge-creating Company Oxford: Oxford University Press, 1995.

[10] E.g. Roslender, R. & Fincham, R., Thinking critically about intellectual capital accounting, Accounting, Auditing and Accountability Journal, 2001, pp.383-398

[11] See Hamel and Pralahad Competing for the Future, 1994