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Intellectual capital and the ‘capable firm’: narrating, visualising and numbering for managing knowledge

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Abstract

Intellectual capital statements are ‘new’ forms of reporting whose object is knowledge management activities. Based on 17 firms’ work to develop intellectual capital statements, this paper analyses them as managerial technologies making knowledge amenable to intervention. Aspects of actor-network-theory are mobilised to suggest that the intellectual capital statement is a centre of translation, which mobilises knowledge management via three interrelated elements: knowledge narratives, visualisations and numbers. Intellectual capital statements report on the mechanisms put in place to make knowledge manageable. Writing intellectual capital is a local story, which often concerns making knowledge collective and a process of allowing it to be oriented towards organisational ends. In such a story, knowledge is about a firm’s capabilities and abilities to make a difference to a user. When writing an intellectual capital statement, firms locate employees, customers, processes and technologies and orient them towards a user. However, the statement as such is a means of ‘dis-locating’ knowledge resources making them amenable to intervention. There are certain broad types of intervention that allows a classification of strategies of intervention to be proposed. These terms are portfolio management, improvement activities and productivity. Such forms of intervention circumscribe the aspiration to transform knowledge from something internal to the person into something that is the effect of a collective arrangement. They allow—through intellectual capital statements—the dark, tacit knowing of individuals to come into the open space of calculation and action at a distance. © 2001 Published by Elsevier Science Ltd.

The huge market-to-book ratios, which have increased dramatically for firms like Microsoft, Astra, Rentokil and Oracle during the 1990s, often justify the current interest in intellectual capital (Stewart, 1997). The growing difference between firms’ market value on the stock exchanges and their book values, or more precisely their equity values, is said to reveal intellectual capital. After all, the argument goes, since the balance sheet

accounts for all physical capital, the difference between market values and book values expresses intellectual capital. For some, this is evidence of the coming of information society where immaterial rather than material assets are the sources of value creation (Drucker, 1993; Reich, 1991). Intellectual capital statements are here in demand to explain the difference between market values and book values and thus show where firms’ intellectual capital is hidden (Edvinsson & Malone, 1997; Lev & Zarowin, 1998; Stewart, 1997; Sveiby, 1997). This difference is never explained, however, but it is used to extend issues of reporting

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beyond the financial balance sheet. Edvinsson (1997) divides intellectual capital three-way into 'human capital', 'organisational capital' and 'customer capital', which identify the areas where the conventional financial statements do not go. Such a breakdown of intellectual capital does not specifically define its relevant numbers, but it illustrates that intellectual capital reporting is an addition to the conventional financial reporting. It allows certain non-financial numbers to be part of a firm's reporting systems.

Not very many firms have published intellectual capital statements yet, so practices are very scarce and therefore there is considerable uncertainty about what an intellectual capital statement is. This is why we attempt to approach intellectual capital from the perspective of practice. Through bi-annual formal interviews, annual questionnaires, feed-back sessions and numerous talks and visits to the firms, we followed 17 (of originally 23) firms' work to develop and publish a minimum of two intellectual capital statements over a period of two years. This approach looks at the formation of intellectual capital 'in the making' (Latour, 1987) when it is not yet settled in a set of black-boxed relations. In the course of the study, intellectual capital was gradually formed and 'invented' as a mechanism which was given power by the relations it was able to influence, and which in turn also maintained it as a particular node of a network of relations.

We study how a particular accounting mechanism or concept—such as intellectual capital—stabilises as a specific phenomenon, which emerges in debate, dialogue and struggle. In a sense, as intellectual capital was not settled at the time of the research, it was 'nothing'. Its 'something-ness' was fabricated in the course of its development where being related to other phenomena, it gradually became something and was able to transform or shift organisational or managerial practices in certain directions. In this sense, intellectual capital was made productive; it was made performative and was able to influence the course of affairs into which it was thrown. We analyse how 'intellectual capital' mobilises 'things' such as employees, customers, information technology, managerial work and knowledge. 'Intellectual capital' is strong only

to the degree that it is able to serve as a mechanism that allows it to hold together heterogeneous elements, which together constitute a whole story or account of how it works.

On this basis the paper suggests that intellectual capital statements are inscription devices that focus on making knowledge manageable. They displace knowledge from 'inside' of the individual into an 'open' collective or corporate domain visualising it by means of a number of various combinable and superimposable inscriptions (Latour, 1990). The intellectual capital statement reports not only in numbers but also in narratives and visualisations about the efforts made in the firm to define and execute knowledge management activities.

The paper is organised as follows. The next section accounts for the main arguments in the intellectual capital literature. A section that more generally suggests that knowledge is a social endeavour and it characterises more clearly the relationships between knowledge and intellectual capital follows it. Then follows a section on methodology, which brings forth parts of actor-network theory and the empirical basis for the paper is presented, parts of which are analysed briefly. Then comes a section on the intellectual capital statements themselves—in particular on the structure of their numbers. A major section analysing in detail three cases follows this section. Before providing concluding remarks, the paper discusses the findings and suggests how intellectual capital statements work as centres of translation.

1. Intellectual capital and knowledge society

Intellectual capital statements are products of practice. Some firms, particularly in Scandinavia, have published intellectual capital statements as a mechanism to show the value of their intellectual capital (Brooking, 1997; Edvinsson, 1997; Edvinsson & Malone, 1997; Petty & Guthrie, 2000; Ross, Roos, Edvinsson, & Dragonetti, 1997; Stewart, 1997; Sveiby, 1997). The context of this reporting is typically the huge market-to-book ratios found in some industries during the 1990s which were argued to show the value of the firm beyond the

investments made in physical or tangible assets. However, intellectual capital statements do not compute this value. Published intellectual capital statements are much more concerned to report on ‘assets’ related to employee knowledge and expertise, customer confidence in the company and its products, company infrastructure, the efficiency of the business processes, and the sophistication of information technology (Larsen, Mouritsen, & Bukh, 1999; Mouritsen, 1998; Mouritsen, Larsen, Bukh, & Johansen, 2001).

Even if intellectual capital refers to ‘capital’, it is not a conventional accounting term. Some authors use it “to refer to the knowledge and knowing capability of a social collectivity, such as an organization, intellectual community, or professional practice” (Nahapiet & Ghoshal, 1998, p. 245). Other writers associate it more intimately with human resource management (Boudreau & Ramstad, 1997) or with the management of information technology (Davenport & Prusak, 1997). Stewart (1997, p. x) characterises intellectual capital as “intellectual material—knowledge, information, intellectual property, experience—that can be put to use to create wealth”. It has also been identified as ‘human capital’, ‘organisational capital’ and ‘customer capital’ (e.g. Bontis, 1998; Brooking 1997, p. 13; Edvinsson & Malone 1997, p. 11; Petrash, 1996; Sullivan, 1998), or as ‘competence×commitment’ (Ulrich, 1998, p. 16).

According to Stewart (1997), human capital is that which thinks: “[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” (ibid., p. 86). Structural capital is “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” (ibid., pp. 108–109). Like human capital, the firm cannot own customer capital. Yet, it is crucial because it 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” (ibid., p. 143). For Sveiby (1997, pp. 10–11) intellectual capital has three dimensions, namely employee competence, internal structure and external structure: “Employee competence involves capacity to act in a wide variety of situations to create both tangible and intangible assets. ... Internal structure includes patents, 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”.

Finally, Edvinsson—known for the insurance company Skandia’s intellectual capital statements—makes a distinction between human and structural capital (Edvinsson, 1997; Edvinsson & Malone, 1997, p. 11), where the former comprises the “combined knowledge, skill, innovativeness and ability of the company’s individual employees ... it also includes the company’s values, culture, and philosophy. Human capital cannot be owned by the company”. This stands in contrast to structural capital, which is “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”. Intellectual capital are employees and “everything else”; this is a very broad definition and it appears to leave nothing out.

The various writers on intellectual capital identify the proposed ‘content’ of intellectual capital statements as certain ‘new’ parameters of the value creating potential of firms. They allude to a knowledge society where knowledge and information “have become the economy’s primary raw material and its most important outcome” (Stewart, 1997, p. x). “The basic economic resource ... is and will be knowledge” (Drucker, 1993, p. 7; Nonaka & Takeuchi, 1995; Quinn, 1992; Reich, 1991; Toffler, 1990). In addition, “the traditional model of ‘accounting’ which so beautifully described the operations of companies for a half millennium, is now failing to keep up with the

revolution taking place in business” (Edvinsson & Malone, 1997, p. 1). Reich (1991, p. 105) is more direct:

Members of the accounting profession, not otherwise known for their public displays of emotion, have fretted openly about how to inform potential investors of the true worth of enterprises whose value rests in the brains of employees. They have used the term ‘goodwill’ to signify the ambiguous zone on the corporate balance sheets between the company’s tangible assets and the value of its talented people. But as intellectual capital continues to overtake physical capital as the key asset of the corporation, shareholders find themselves on shakier and shakier ground.

“The value of the talented people”, of which Reich speaks, indicates in this discourse that knowledge is individual and therefore that the value of knowledge is ‘located’ in people. By implication, the powerholders of the knowledge society are individuals. As they are more important for value creation than physical assets, the firm is re-invented around the person (Bartlett & Ghoshal, 1997, Johansen & Swigart, 1994). This is a centring of the individual and its “tacit knowledge” (Nonaka & Takeuchi, 1995) and the creative, unique individual (Sveiby, 1997). Nonaka (1994, p. 97) suggests “that creating new knowledge... depends on tapping the tacit and often highly subjective insights, intuitions, and hunches of individual employees and making those insights available for testing and use by the company as a whole. The key to this process is personal commitment, i.e. the employees’ sense of identity with the enterprise and its mission”. Here, the source of value creation is the individual employee who is to be persuaded to render knowledge to the firm. So, the firm is an appendix to individuals’ knowledge. This idea that knowledge is purely individual, however, is highly problematical.

In contrast to seeing knowledge as individuals’ property, resource-based theory suggests that knowledge, or organisational competencies, are rooted in organisational routines and in

complementarities between skills and technologies. “A competence is a bundle of skills and technologies rather than a single discrete skill or technology. ... A core competence represents the sum of learning across individual skill sets and individual organizational units. Thus, a core competence is very unlikely to reside in its entirety in a single individual or small team”, Hamel and Prahalad (1994, p. 223) say. They suggest that “in the long run, competitiveness derives from an ability to build, at lower cost and more speedily than competitors, the core competencies that spawn unanticipated products. The real sources of advantage are to be found in management’s ability to consolidate corporatewide technologies and skills into competencies that empower individual businesses to adapt quickly to changing opportunities” (Prahalad & Hamel, 1990, p. 81). Here, corporate competence is the ability—or knowledge—to consolidate bundles of interpersonal technologies and skills, which are integrated in the competencies or capabilities emanating from the combination or co-ordination of technologies and skills, and therefore the locus of knowledge in this perspective is collective (Mouritsen, 1998; Ross et al., 1997). Organisation is concerned with the mechanisms that integrate various organisational places, skills and technologies. The mode of knowledge management is here not person centred but centred on collective processes and procedures. What is knowledge here—and what does it mean to manage it?

1.1. Knowledge and the management of knowledge

Drucker’s (1993) version of knowledge society is one where knowledge is the basic economic resource. However, to merely see knowledge as a resource, which exists independently of the organisational and social activities it helps organise, is probably misguided. Foucault (1980) clearly points out that knowledge and power are related in complex ways. He is concerned with the mechanisms by which “the exercise of power perpetually creates knowledge and, conversely, knowledge constantly induces effects of power” (1980, p. 52). Knowledge will not guarantee access to a progressively larger stock of truths. It is not a

“universal good” and therefore not necessarily a progressive force in society. It is simply a “system of ordered procedures for the production, regulation, distribution, circulation and operation of statements” (ibid., p. 132). Therefore it is part of the institutional and social rules that make knowledge acceptable. It is not outside society; it is part of society and this requires a “political economy” of truth centred on scientific discourse, use in economic production, consumption and circulation, and social confrontation.

Likewise, for Lyotard (1984, p. 18) “[k]nowledge ... is a question of competence that goes beyond the simple determination and application of the criterion of truth, extending to the determination and application of efficiency (technical qualification), of justice and/or happiness (ethical wisdom), of the beauty of a sound or color (auditory and visual sensitivity), etc. ... [K]nowledge is what makes someone capable of forming ‘good’ denotative utterances, but also ‘good’ prescriptive and ‘good’ evaluative utterances”. Therefore, to Lyotard, under the post-modern condition knowledge is never outside a system of legitimisation, which allows it to be regarded as knowledge. It does not have use-value per se. It is—at least in contemporary society—under the impression of its performativity, its ability to transform the world.

To Giddens (1990, p. 27), where knowledge and the capacity to act are tightly connected, in the specific conditions of modernity, knowledge often shows itself as abstract systems. These are “systems of technical accomplishment or professional expertise that organise large areas of the material and social environments in which we live today”. Here, knowledge is often “disembedded” and outside most people, and it is mediated by professionals who “guarantee” by their training and experience, and sometimes by government accreditation, that they have access to certain technical competencies that allow them to solve problems. Knowledge is abstract, formal and technical, and it is often disembodied as lay people have problems accessing it to change their material world. However, this knowledge is also corporeal in the sense that ‘professionals’ act as mediators between a whole set of abstract capabilities and their realisation in practice. Here, knowledge is an institution with a

set of institutionalised ‘problems’ and ‘solutions’, which can travel across society. Knowledge travels alongside or among the people and technologies that can make it work. For lay people to trust such knowledge, they have to have ‘faith’ because they cannot explain it themselves. Here, knowledge is related to faith in certain institutions, and therefore knowledge is not out of social concerns but indeed part of them.

Latour (1991, p. 160, 1993) does not refer to knowledge a lot, but he does raise the issue of correspondence and relates it to power: “whatever is mobilized in x to act upon another setting”. Knowledge is concerned with the artefacts that allow aspirations to act at a distance to flow. In other words, “[t]he problem of correspondence ... becomes crucial only for those who want to act at a distance. If you are not at a distance, or do not wish to act upon other settings, the notion of correspondence vanishes, and so does the problem of the referent.” (ibid.). To Latour, knowledge is therefore not concerned to uncover a set of “hidden” referents. “Referents” are established in the course of mobilising strong explanations and long networks of interrelated artefacts with a view to acting at a distance.

Foucault, Lyotard, Giddens and Latour, in each of their ways, help question the traditional philosophical assumption that knowledge, regarded as “justified true beliefs”, is a “thing” applied to the working of society. Instead, knowledge is inevitably an integral part of that society in the first place. First, it is a mechanism that continuously intervenes in social affairs and that therefore does not stand outside society as a ‘stock’ put into an inventory. It is inherently involved in the production of social problems and solutions. Second, knowledge is built, disseminated in and probably even sold for and around use situations. Knowledge is not just passed on. The providers of knowledge—professionals and experts—are linked to a clientele or a public and produce the ‘market’ for that knowledge (cf. also Stehr, 1994). Knowledge exists in relation to certain practices, which it actively plays a part in organising and transforming. It is not a subtract of the world and thus not separated from its use. Third, knowledge is bound up in bundles of heterogeneous elements (cf. Law,

1992, 1994). It is not only a ‘finding’. It is also part of a wider set of processes related to its marketing, its associated spokespeople in the form of experts, professionals or counsellors and its relation to an issue, which makes it ‘useful’.

1.2. Knowledge and intellectual capital statements

As knowledge is a social activity—a set of relations in motion—intellectual capital statements cannot represent its ‘size’ or ‘worth’. It does not consist of separable ‘assets’ that can be captured by (conservative) accounting rules in a balance sheet. The network of elements that together constitute what knowledge is about is beyond a structured inscription in a balance sheet. However, even if knowledge per se is inaccessible by principles of accounting rules, managers do try to ‘identify’ or ‘manage’ knowledge. They construct inscriptions that allow them to intervene and act at a distance and thus make them powerful enough to evaluate the work e.g. of a professional or an expert. They may not be able to comprehend the technical competencies needed to execute a particular craft, but they may be able, in an act of contextualisation, to define ‘qualities’ that allow them to determine whether a certain ‘job’ or ‘product’ works or is qualified. Here, managers would not be engaged in a context-reducing act of subtracting knowledge from the world. They would, on the contrary, be drawing up a series of relations situating in a specific context the effects of a whole set of elements, constituting the ‘piece of knowledge’ concerned, thereby actively adding to the world. The intellectual capital statement is used here to track the knowledge management activities that are put to work in order to organise the knowledge resources of the firm. This includes a series of ‘small things’ such as attention to recruitment and the composition of the workforce, investments in developing organisational processes, improvements of technology usage, and the effectiveness of products and services for customers and users.

Therefore, even if managers may not have direct access to persons’ inner knowledge, they may, analogously to scientists, be able to “master the world, but only if the world comes to them in the

form of two-dimensional, superimposable, combinable inscriptions” (Latour, 1995, p. 147). At least, this is what managers aim at when they attempt to construct the ‘referent’ of knowledge. It is not knowledge in its classical philosophical sense but more precisely the activities of translation put in motion in the name of knowledge. Therefore, when managers debate knowledge in view of intellectual capital they look for a mechanism—a managerial technology—that like a centre of translation allows them to arrest, transport and evaluate knowledge and its effects in firms. They are on the lookout for a black(ened) box they can mobilise and that is constructed to fit their moves in business organisations—a technology of managing (cf. Hansen & Mouritsen, 1999). Intellectual capital statements are not about knowledge per se. They are about the actions and activities that managers put in place in the name of knowledge. Such activities are complex sets of interventions that cannot be captured easily. This is why managers in the firms to be reported on hereafter use quite spectacular forms of reporting which combine not only numbers but also narratives and visualisations of organisational knowledge management strategies.

2. Studying intellectual capital in the making

The ‘evidence’ for the existence of intellectual capital is the huge market-to-book ratio witnessed in some industries during the 1990s. This relation is presented as an indirect measure of intellectual capital, and it is not a very satisfactory one as such because it appears to include ‘too much’. Is all, which is not counted as accounting assets, really intellectual capital? Is intellectual capital really the difference between market value and book value? There must be more to the story because if it were true, book values would influence intellectual value, and as book values depend on the accounting rules, the absurd implication presses itself forward, that to a certain extent intellectual capital depends on accounting rules. This is counter-intuitive, and intellectual capital would be thought to impact market value and thus be prior both to market value and to book value. Therefore, to

understand intellectual capital, market-to-book ratios may not be very informative.

A different approach, used in this paper, is to study how intellectual capital makes a difference in firms. More precisely, as intellectual capital is carried by a nebulous metaphor of ‘intangible assets’, its translation into organisational practices is open-ended. Its transformation from ‘nothing’ into ‘something’ is a process where it emerges as an actor (Latour, 1996). It is simultaneously defined and made durable in the course of its ‘application’, and it mediates the search of managers for new modes of controlling their business in a situation given weight by an appeal to knowledge society. This is why certain aspects of actor-network theory are appealing.

Actor-network theory is concerned to investigate, how society is held together by a heterogeneous set of elements. Rather than assuming that society has a certain form because this is the essence of social relations, it suggests that society is held together by a long list of human and non-human objects that stand in relation to each other. This is the distinction between an ostensive and a performative explanation of society. Explaining this difference, Latour (1986, p.272) points out that the ostensive definition of society implies that ‘in principle it is possible to discover the properties which are typical of life in society and could explain the social link and its evolution, though in practice they might be difficult to detect’. Here, the methodological principle is to uncover stable relations by more analysis and more detailed research. A piecemeal and systematic approach to research will eventually—even if we have to wait for considerable time—lead to true insights about, e.g. intellectual capital. In contrast, the performative definition of society is concerned to say that “it is in principle impossible to define the list of properties that would be typical of life in society although in practice it is possible to do so” (ibid., p. 272). The things that hold society together cannot be specified in detail a priori because its very specification is part of the mechanism that holds a society together. It is held together by relations between heterogeneous elements.

Here, a phenomenon such as e.g. intellectual capital is produced and held together by the set of

elements that it refers to and is able to incorporate in its story or explanation. Such a view is concerned to show how “actors and organisations mobilise, juxtapose, and hold together the bits and pieces out of which they are composed” (Law, 1992). Instead of black boxing the intellectual capital statement “and then look for social influences and biases” (Latour, 1987, p. 21), it is much more rewarding “to be there before the box closes and becomes black” (ibid., p. 21). Intellectual capital statements are thus “created and transformed by chains of translators” (Sevon, 1996, p.51). In translation processes it “is in the hands of people; each of these people may act in many different ways, letting the token drop, or modifying it, or deflecting it, or betraying it, or adding to it, or appropriating it” (Latour, 1986, p. 267).

Drawing on such a principle, the study of intellectual capital looks at how relations are established and made strong. It requires attention to the formation of ‘strong relations’ and therefore to how fragile potentialities are made strong and durable—in effect, it requires attention to how the concept ‘intellectual capital’ is used as an argument to make heterogeneous elements stable and obvious. Over time, the strength of ‘intellectual capital’ is variable and only discernible by the length of the chain of elements it is able to command. Therefore, the issue to be addressed is how intellectual capital is performed and made to perform. It is concerned with how intellectual capital is stabilised, made productive and potent, and becomes a central key to the firm’s construction of itself. Rather than assuming that there is a linear relationship between measuring, reporting and managing intellectual capital, this relationship is studied on the basis of 17 Danish firms attempting to construct intellectual capital statements over a period of 3 years.

The project is organised by the Danish Agency for Development of Trade and Industry in collaboration with researchers (the authors of this paper) and a consulting firm and 17 Danish firms. The Agency—in an act of national industrial policy to promote knowledge society—wished to develop a set of guidelines for the development and publication of intellectual capital statements. The 17 firms have agreed to develop and publish

at least two intellectual capital statements. The process is as follows. Bi-monthly, the firms met to talk about their experience, and certain input is provided by consultants, and by the feedback of researchers on what was underway in the firms. This feedback is a commentary on the development of the firms' work and is thus more a description of what they do, how it can be rationalised, where the differences between the firms are and how the 'next challenge' has been defined for various situations. It is not 'consulting advice' although it is impossible to claim that this feedback is unobtrusive. It forms one of the reflexive dimensions of the project along side other reflexive inputs, such as talks by practitioners and other academics, examples of how other firms that publish intellectual statements created them, and individual process consulting activities performed by the associated consultants.

The research is concerned with the gradual development of the notion and practice of intellectual capital. Multiple methods are employed to follow this 3-year process. Each firm was interviewed at least twice per year, a questionnaire was administered each year, and monthly meetings between the firms were observed. All these methods were oriented towards the same five questions: (1) Why do the firms want to measure intellectual capital? (2) Who are involved in the project? (3) How does the firm work with intellectual capital? (4) What is intellectual capital made to be in the specific firm? (5) What potential effects is the reporting of intellectual capital expected to have?

2.1. The 17 firms

All but two of the firms participating in the project are service companies, and half of them operate in the IT business (www.efs.dk/icaccounts). This is by no means a representative sample of Danish firms, and they all claim that knowledge is a prime resource for them. Such a claim is not unambiguous, however. In the different firms, the discourse of intellectual capital mobilised a set of different, albeit overlapping, themes of interest. One theme is external and is concerned to present the firm so that potential employees and customers can be made interested

participants in the firm's activities. Here, the interest is to illustrate the strengths of the firm with a view to expanding its resource-base. The internal theme is concerned with knowledge management in some form or another. The ability to share knowledge, to develop knowledge and to retain knowledge is strong here. More specifically, the motives for engaging in the work of intellectual capital have been addressed in the questionnaire. Fig. 1 illustrates the importance of such motives.

Fig. 1 shows the responses to a select set of questions.¹ It is clear that in this sample the interest in intellectual capital is primarily related to the human, organisational and customer-resources of the firm. Financial resources, as in access to new financial capital, are not the reason to be concerned with intellectual capital for these firms. The small differences that can be seen from the fig. over time (which are not statistically significant) suggest that the view of how intellectual capital is to move the firm has been fairly stable over the first year of the project. If these differences are to be taken into account, however, they suggest that over time the interest in the individual person as object for intellectual capital have to a certain extent been overtaken by a more structured interest in making the firms as such a 'reservoir' of intellectual capital. Such a more management-oriented theme appears to replace an employee agenda, where the rhetoric of the individual employee as the firm's most important asset, has been contextualised by a heightened interest in preserving the continuity of knowledge recourses. This requires a management interest in acting on knowledge resources at a distance.

Interviews provide some interpretation of Fig. 1. When directly asked, firms would come up with one or more variations of the following explanations about the expected and desired effects of their work with intellectual capital. One effect is to see intellectual statements as *knowledge management* tools to be used internally in order to 'manage knowledge and competencies' as well to improve knowledge sharing or as a supplement to

¹ It shows the percentage of the responses given as 4s and 5s on a five-point Likert scale.

other knowledge management activities. A second effect is to use intellectual capital statements as media for *communication* to be used to identify, support and disseminate a corporate identity in relation, e.g. to values and ways of working. This could be relevant both in relation to *recruitment* of new employees and *attraction* of new customers. Firms experience increased competition both in the ‘factor’ market and in the ‘product’ market. A third desired effect of intellectual capital is the provision of a framework for *human resource development*. From this perspective, attention is on outlining current employees’ competencies as well as competencies needed in order to develop a map of competence gaps, which would provide the links from the training and education programs to the intellectual capital statement. For a few of the firms, intellectual capital statements were interesting for their potential ability to illustrate the *value*

of the company in order to inform potential investors of the ‘true’ value of the firm. Another aspect of this is the potential role as a *marketing* mechanism demonstrating the knowledge or competencies of the firm.

These different explanations show why firms are interested in managing knowledge. These are some of the translations made to make intellectual capital statements fit into an organisational system where the objects for management control are being re-invented. Fig. 2 help illustrate that this is a corporate-wide agenda as the people working with the development of intellectual capital statements are drawn from many sectors of the firm.

Fig. 2 illustrates that top management’s interest is impressive and that the accounting and the HR departments have been heavily involved in the projects. This suggests that the intellectual capital statement is not easily located in an existing

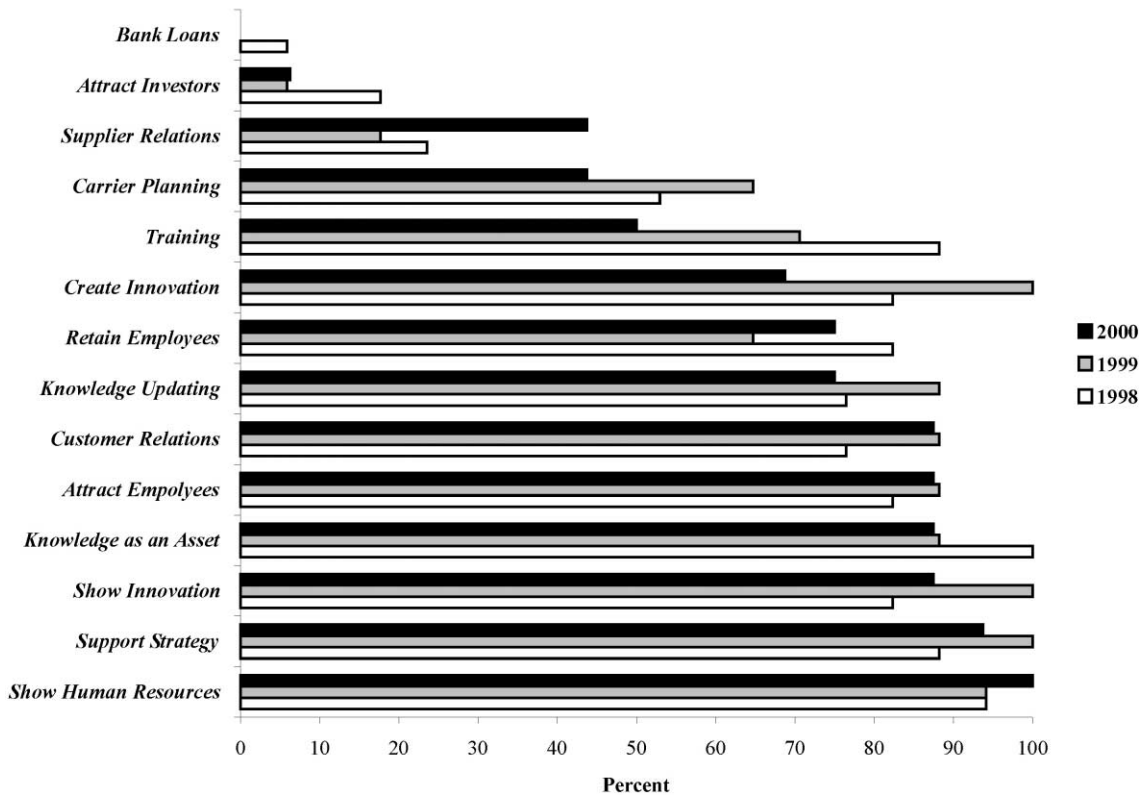


Fig. 1. Motives for working with intellectual capital.

organisational function. Intellectual capital tends to work across organisational boundaries and crafts new organisational agendas. The spread of parties involved in the project and the massive interest of top management suggest that a new organisational theme is being formed.

The results of the work also vary dramatically between the firms. The first set of published reports was produced in the spring of 1998. The details of the reports are impossible to capture in a paper, but Fig. 3 indicates that great variety can be observed.

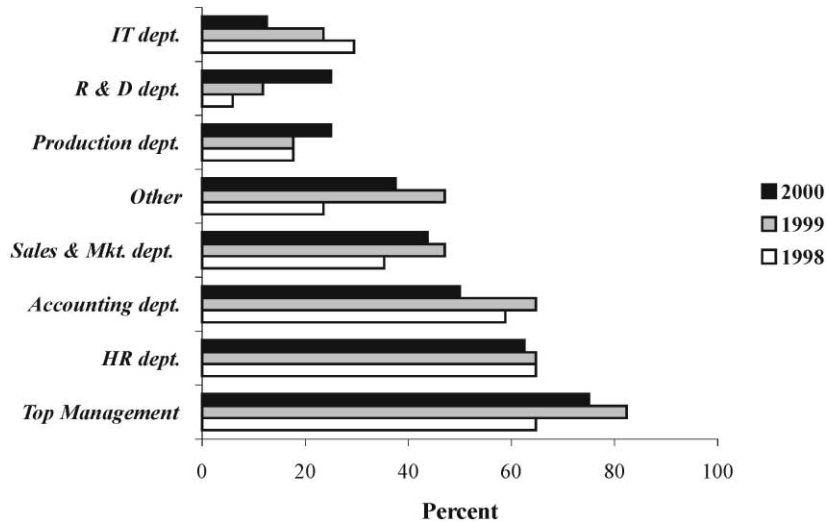


Fig. 2. The participants of the intellectual capital projects.

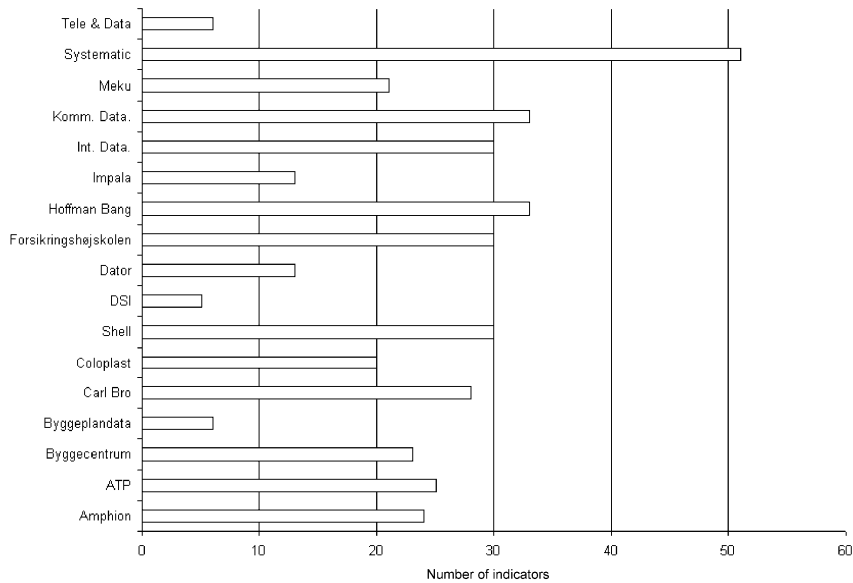


Fig. 3. Number of indicators in the intellectual capital statements.

Fig. 3 illustrates that the number of indicators used in the individual intellectual capital statements range from 5–6 to more than 50. Explanations of this difference must be cautious given that the firms’ areas are still experimenting with the format of their intellectual capital statement. However, are the differences merely quantitative or also qualitative? Are the differences in the number of indicators a matter of substance or merely of form? To investigate this question, three of the firms’ intellectual capital statements will be discussed below after an introductory discussion of the 17 intellectual capital statements in toto.

3. Intellectual capital statements

Intellectual capital statements are complex forms of reporting which combine numbers, narration and visualisation. They do not only mobilise numbers and indicators, but also a story-line—a knowledge narrative—which describes the ‘production function’ of intellectual capital, and often a sketch, which provides an illustration of the work of intellectual capital. Firms’ stories about intellectual capital differ, however. Their visualisation of the components differs, and the numbers

used differ (as will be illustrated more clearly through three case studies later in the paper). What then, holds them together? How is it possible to say that they all are concerned with intellectual capital?

Reading intellectual capital statements, the impression is one of diversity. They do not have a set model, but they all somehow are organised along three dimensions. First, they have some form of knowledge narrative—a scenario, which is a story line of the capabilities of the firm, and thus of how it is good at doing something. The knowledge narrative is a presentation of the firm’s knowledge resources focusing on how they interact and allow the firm to be capable of doing certain things for external users. It thus both has a proposition of the firm’s ‘production function’ and of the value proposition supplied to users. Second, intellectual capital statements identify a set of knowledge management challenges, which are the efforts management puts in place to develop and condition the firm’s knowledge resources. These management challenges are related to the knowledge narrative as they seek to identify and implement activities that help realise the narrative more. Third, there is a report which combines numbers, visualisation and the narrative in a composition

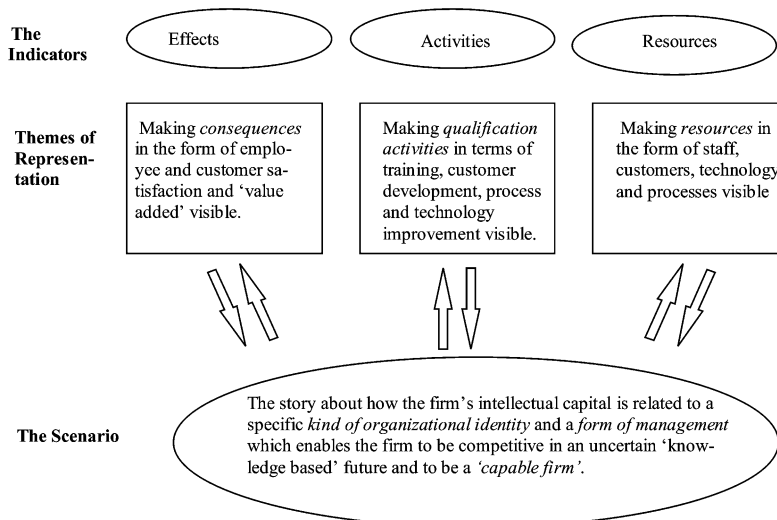


Fig. 4. The idea of the intellectual account.

designed to show the development of the firm's knowledge resources.

The commonalities between firms are illustrated in Fig. 4. It illustrates how the *numbers* are defined and connected with a set of *management challenges*, and how they in turn together connect with a *narrative*—or 'grand story'—which makes them relevant. These three elements are tightly coupled although in very different ways in among the firms.

Following Fig. 4, intellectual capital statements connect specific numbers, management challenges represented by these numbers, and the knowledge narrative that makes intellectual capital productive.

3.1. *The knowledge narrative of the capable firm*

Fig. 4 suggests that the knowledge narrative is one which specifies the identity story of the '*capable firm*'—located in a version of a 'knowledge based' world—that is concerned with the need for 'innovation', 'flexibility', or other statements that represent the role of the firm in its world. This general story is then translated into management challenges, which embody the particular mechanisms that managers put in motion to enhance the knowledge narrative.

Writing an intellectual capital statement along these lines the concern is to present the firm's unique aspiration to be a capable firm. This is a statement of knowledge management strategy and it defines what the firm is to be able to accomplish. Some times this statement has an elaborate story about the difference it makes for the users, thus making it possible to translate this into the capabilities the firm has to develop. For example, Coloplast (www.coloplast.com), a Danish producer of medical supplies, suggests that it not only produces plastic bags to contain bodily fluids for people who have had their colon operated out through the sides of their bodies. It suggests that it produce 'Quality of Life' saying that it has to be concerned about the particular use made of the plastic bags. Its intellectual capital statement has a long narrative of examples of situations, where the product makes a difference to specific people. These stories comprise the knowledge narrative along side a statement about why the firm there-

fore has to be capable of being particularly quality oriented so that the products will not leak and create embarrassing situations for users. It goes on to show that therefore the management challenges are about quality management, about interactions with users to enhance insight into use situations, and enhanced attention to product development guided by use-situations. Numbers about quality, about number of interactions with user groups and customer satisfaction and numbers about investments in product development can monitor the implementation of this set of management challenges.

This example shows how the knowledge narrative is an aspiration that connects the user and the firm's capabilities. It shows how the firm will be capable and why. It also illustrates the specific translations from the knowledge narrative to the management challenges, which are corporate-wide concerns often focusing on issues that are cross-organisational—or at least not found merely in one function. It also shows that numbers can be attached to the management challenges to show how they are implemented. The numbers do not show the financial value of intellectual capital. In contrast, they show the implementation of the management challenges suggested to allow the knowledge narrative to flourish.

3.2. *Structuring the numbers of the intellectual capital statement*

The indicators are related to the knowledge narrative and the set of management challenges. However, it is useful to delve a bit into how the numbers can be understood. Even if they are always only relevant as indicators for the implementation of the management challenges, they present certain broad statements about the development of a firm's knowledge resources.

As discussed previously, the typical models of intellectual capital claim ability to measure the essence hereof via human capital, organisational capital and customer capital. This will not work, however, because there is no essence, as the indicators in an intellectual capital statement are less expressions of functional qualities than they are mere effects of certain calculations, which involves

a transaction (see also Mouritsen et al., 2001). This allows possible indicators of knowledge management to be auditable (Power, 1997), because they can be categorised and classified just like any financial transaction—whose materiality is a receipt. The classification system is the ‘referent’ of the number. The classification system that focuses on the transactions in or around an indicator—rather than the essentialist human, organisational and customer capitals—illuminates the indicator in the form of the ‘transaction’ that it inscribes—such as statements about employees, customers, processes and technologies. In turn, such statements about employees, customers, processes and technologies are interesting and relevant only when they are inserted into an account of their usefulness vis-à-vis a narrative of corporate development. Therefore, the indicators are interesting for their relation to specific organisations patterns of development rather than as generic and essentialist form of intellectual capital such as human, organisational and customer capitals.

The classification system may help create a ‘distance’ to the intellectual capital statement’s numbers by ‘imposing’ certain managerial issues just like various ratio analyses help read a firm’s financial statement. Indeed, the reading of the model to be presented below is parallel—if different—to a reading of a financial accounting statement. A conventional financial accounting statement has four domains (transactions about

revenues, costs, assets and liabilities) and the model proposed also has four domains (statements about employees, customers, processes and technology). Likewise, the financial accounting statement allows three general *prescriptive* readings: one of solidity, one of liquidity and one of profitability. The intellectual capital statements may also enable three different *prescriptive* readings, namely for portfolio management activities about the firm’s knowledge resources, for its qualifying activities when resources are improved, and for its monitoring of productivity when effects are surveyed. These parallels obviously should not be taken too far, but the point that broader insights can be derived from the intellectual capital statement than the individual number itself allows a reader to form some intelligent evaluation of the attempts to make knowledge management activities important management issues.

The numbers developed in the 17 firms can be classified according to the model presented in Fig. 5. This model has four domains: employees, customers, processes and technology, and three categories of information about the knowledge management activities performed by management: effects, improvement or qualifying activities and resources. The model classifies the numbers in the intellectual capital statements. It therefore does not talk explicitly about the firm’s knowledge strategy or identity. These have to be formed outside the analytical model. The model classifies

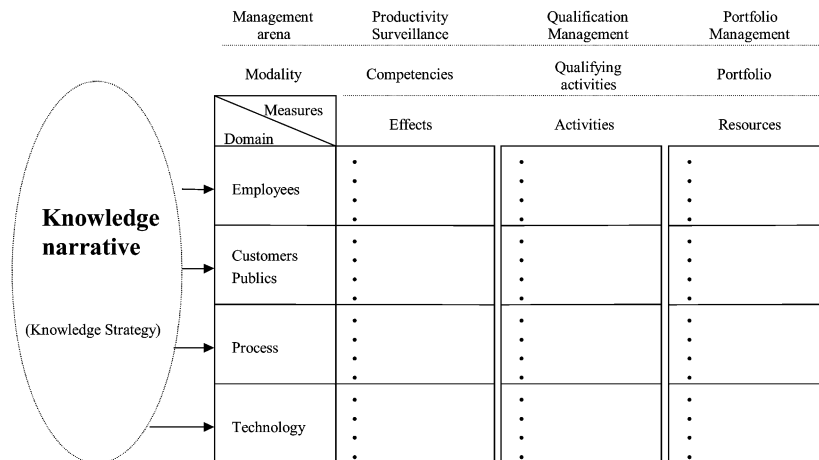


Fig. 5. Analysing intellectual capital indicators.

numbers, which can be drawn in to support the stories and narratives in numerous constellations.

The model's four domains are the objects that the numbers describe. These objects tell a very general—and very flat—story about the firms' intellectual capital. This allows auditability to be put in place. A lot of words proposed in intellectual capital statements do not qualify here. For example, concepts such as 'innovation', 'flexibility', 'customer-orientation', and 'strong culture' are interesting signifiers for the firms, but they are elements of knowledge narratives rather than indicators. For example, 'innovation' can be indicated as revenues from new products, by number of patents, by number of PhDs, or by financial investments in training and education. 'Innovation' does not only have one referent, and therefore it does not 'classify itself'. Therefore the story about 'innovation' has to be told outside the numbers in the identity narrative, where it is part of an explanation that can draw on these indicators. However, they are not 'innovation'; revenues from new products are about customers, number of patents is about processes, number of PhDs is about employees. They can all, however, be mobilised in a story about 'innovation', which does not exist per se. It is a narrative built on practices that can be captured by other forms of classification—or at least translated to and from them. This is why the numbers in the analytical model have to be about different things. It shows more generally what types of actions and objects have been built into, or are related to, a number.

Resources are about the portfolio of the firm's resources. It is concerned with decisions about portfolios of employees, customers, processes and technologies. Such numbers answer questions about management's actions in 'structural' decisions about resources and portfolios. *Activities*

describe the qualifying acts put into work to improve the applicability of the different resources. These are activities undertaken to upgrade or develop resources. *Effects* describe the consequences of the relationships between portfolio and qualifying activities. It is about improvements. These improvements are found in the collective effects of the entire set of numbers presented. There is *no* clear causality here. All numbers can appear in combinations with each other. Management here undertakes productivity control.

Experiences from firms suggest that many types of indicators are possible. Some firms focus more on a selected set of indicators while others have a much broader scope. For all indicators, relevance is determined by their ability to allow the firm's identity story to be continued and the specific form of management that allows the scenario to be addressed. They are all part of the same attempt to realise the ideals of the knowledge narrative. As a consequence, numbers in intellectual capital statements vary.² Using this model analytically, Table 1 shows the number of indicators, which can be classified in it.

Table 1 counts the total number of indicators used by the firms stratified according to the model. It shows that generally indicators cover the whole model. Most of the numbers are about employees, typically in the form of resources. Accordingly, numbers about the composition of the workforce are frequent. There are also many numbers about qualifying employees often in the form of training, and there are effects measures, e.g. in the form of employee satisfaction. It should be noted that this is a presentation of the stratification of the numbers. This does not mean that their function can always be limited to their position in the classification. Sometimes certain indicators carry several

Table 1
Stratified number of indicators in intellectual capital statements

	Effects	Activities	Resources
Employees	36	69	93
Customers	45	15	36
Processes	33	19	17
Technology	8	16	18

² It is noteworthy that most of these indicators are labelled 'non-financial' even if in a technical sense they are not. Market share information is financial, cost information is financial, and often what makes these indicators 'non-financial' is that they are mediated by information outside the financial database rather than because they lack reference to financial information. Other types of information, however, are more clearly 'non-financial', e.g. indicators of satisfaction or time, quality and training.

possible categories such as, e.g. employee training in technology, or customer satisfaction with employees' service. For such numbers accounting standards have to be developed. Here, training on technology is a statement on technology and customer satisfaction with employee service is a statement on customers. Likewise, employee training has to have an object; it is often about technology, processes or customer relations.

The stratification of these numbers suggests that 'on average', there are numerous ways in which numbers have been attached to organisational knowledge management activities, and thus the precise way in which this may be done requires more detailed analysis of cases. To illustrate these complexities, three examples will be presented below. They illustrate three knowledge management contexts that they help illuminate and explain.

4. Three cases of intellectual capital: Dator, Systematic and Carl Bro

There is much more to an intellectual capital statement than the numbers. There is also an interpretation, which connects the knowledge management activities to a story line, because per se there is little connection between knowledge and the numbers. They are made relevant not because they are logical in a strict mathematical sense (as is the case with financial key ratio analysis) but because they can be made to support and not be in conflict with a broad story about the capabilities and identity of the firm. This story—or knowledge narrative—is seen to thrive when the collectivity is supported by new or strengthened relationships between employees, customers, technologies and processes, and when people's 'psychic energy' or 'motivation' is directed to identifying and solving the firm's problems at large. There is—in the discourse of intellectual capital statements—a scenario of an organisational identity where some measure of 'empowerment' is in place because new markets and more heterogeneous customers have to be served. There is 'talk' about an increasingly 'individualized firm' (Bartlett & Ghoshal, 1997; Johansen & Swigart, 1994; Reich, 1991; Sveiby, 1997).

Therefore, the intellectual capital statement is not only a set of numbers. There is more, namely sketches/visualisations and stories/narratives. Together numbers, sketches/visualisations and stories/narratives form a network, which constitutes the report. The numbers show that management is serious about intellectual capital and can be held accountable to its words and espoused aspirations. The sketches/visualisations construct a certain 'wholeness' in the organisation of numbers, while the story/narrative suggests how the legitimacy of the intellectual capital statement is formed.

The general explanation of intellectual capital provided above discusses the conditions of variation, but does little to exemplify it. Therefore, in this section, three cases are presented which connect the individual firm's knowledge narrative; its management challenges and its constellation of numbers. In short, it connects between numbering, narration and visualisation. This connection is important, since "[i]f we want to understand a society, or some part of a society, we have to discover its repertoire of legitimate stories and find out how this evolved" (Czarniawska, 1997, p. 16).


4.1. Dator

In the case of Dator (www.dator.dk), a small Danish IT company, there is a story line of a firm working to integrate employees' 'heart' and the 'mind'. Case 1 of Dator shows a three-way interaction between a quotation about the knowledge management problems of the firm, a sketch which shows the boundaries of what intellectual capital is about in this particular firm, and the set of numbers, which is reported in the intellectual capital statement.

In Dator, all the indicators are constructed around employees. Its management challenges concern how high professional capabilities can be combined with personal qualities, 'psychic' competencies, so that the employee is able to act as responsible project leader. It is here a 'capable' organisation performed through people. As they suggest in Dator:

Case 1: Dator’s management challenge, visualisation and numbers

Dator’s technical solutions are produced in project groups, which are assembled differently from project to project. Employees’ knowledge can be distinguished in professional knowledge and application knowledge. The professional knowledge is knowledge about programming, software and hardware. Application knowledge covers knowledge about customers’ processes and needs.



	Effect numbers	Activity numbers	Resource numbers
Category \ Form			
Employees		<ul style="list-style-type: none"> * Average training investment /employee/year * Training investment (% of total salaries) * Average hours of on-the-job training * Average hours 	<ul style="list-style-type: none"> * Number of staff * Number of women vs. men * Intake of new employees (last year) * Resignations (last year) * Staff distribution (development/operation vs. other) * Average seniority * Average age of staff * Educational profile * List of different education's of employees
Customers			
Processes			
Technology			

We normally say that this place is characterised by ‘hard fun’. It has to be fun to be here. This is what we want, and this is precisely what young people want. Work has to be developing and fun at the same time. We have a reputation that says that you can only be an employee here if you have first grades, but we try hard to say that this is not the only kind of knowledge we want. It is true that a person has to be professionally very able, but his or her personal competencies are just as important. This is important since we have lots of project leaders who alone can get the responsibility that an airport system in China actually works. This requires an intelligent engineer from the IT business, but it also requires a person who can co-operate and manage processes etc. This is the agenda: we say that we want the knowledge of a whole person—even if this sounds a bit too popular.

The idea of ‘a whole’ person is a humanistic project, but not only. It is also a resource requirement for a firm where employment is low (about 60 people) and where at the same time, jobs are conducted all over the world. Here, there is little room for division of labour, and the individual has to be able to understand the business of the firm intuitively. This is also why Dator works directly with corporate culture:

We have to start with mission and vision, i.e. how we want to work. We say that we want to make the employee a strategic partner, and this will be the point of departure for our intellectual capital statement. This combines strategy and reporting, and obviously the employees have to be part of this process.

There is a relationship between the knowledge narrative and the intellectual capital statement

that points out elements in the management model. Employees have to understand what the business is about and how it is to solve problems. Therefore, the mechanics of management is organised around the acquisition of people, their training and their enrolment into the organisational machine and ways of working. The individual employee has to 'have fun' as it was suggested, but he or she also has to accept responsibility to co-produce the business and not expect to be managed, but to sort out the problem him- or herself:

We are very focussed on the timing of when we can make people project leaders. We are very concerned that they are 'psychically' robust for the job and we tell people that we have to make them strong and robust, be active 'go-getters'. . . . Dator's unique way to conduct its business is the learning organisation, i.e. open offices, get the individual to seize responsibility, and an open culture.

Here, there is a concern to make intellectual capital a matter of 'heart' and 'brain', which have to be in concert. Knowledge management activities are concerned to attract and retain the best people from both a professional perspective and a personal perspective. The competencies needed are not only academic but also 'social'. This is particularly important because most of the employees work independently as project-leaders in collaboration with customers, and being a small firm, employees in Dator have to be able to manage things on their own.

There is a colourful sketch in Dator's intellectual capital statements. It dramatises the role of the heart and the brain. It singles out two parameters of the management of the firm and makes them the central parameters to be concerned with. The associated management challenge suggests that the primary levers of knowledge management are the in-house testing of people's 'psychic' robustness and ability to handle technical as well as organisational problems on a job far away from help from the firm. Knowledge management rests in the management of academic knowledge—which is a question of acquisition—and personal

skills which is the upbringing set in motion to persuade the individual to be part of a team and suggest that the firm is more than a platform to mobilise the employment market. Lots of things go on within the firm to align people to each other. This can be documented by the numbers preferred by Dator and published in its statement: they are about people and their entry and development in the firm. It is not so much about their results, because these are said to be much too complex and ambiguous to be part of a long-term strategy to develop organisational competencies. Dator's employees own a portion of the firm's shares, and it underlines that the intellectual capital statement has to make the 'person-centred' strategy realistic:

It is important that the HR management is in charge of the intellectual capital statement. One objective is to show that we mean it seriously when we say that we centre our employees and their knowledge, and it is a way to signal that we are a very young firm. . . . We have to show that this is more than 'fancy words'. There is a mental hurdle to accept that the expenses we spend [on HR development] are not only philanthropy, and that building good relations with each other really improves the bottom line. We must have a coherent group of people and a culture, which says: Well we may spend money for social activities here, but this is not merely waste of money. It is a mental attitude and one has to understand the house to really appreciate the power of this.

The intellectual capital statement is part of a wider scheme of believing in the proposition that resources and competencies are important. It is a 'belief' that employment markets cannot provide the skills and competencies needed for the firm to thrive. It is also, however, an indication that even if the individual is centred, he or she cannot work sensibly without the support of the culture or the connections that make everyday life not a thing in isolation, but indeed part of a collective community of practice.

4.2. *Systematic*

Systematic (www.systematic.dk) is a medium-sized Danish IT firm. It organises its numbers according to a variant of the business excellence model (the EFQM model) used to assess firms for quality awards around Europe, and it illustrates a management control approach to intellectual capital. As illustrated in Case 2, it shows in the form of causal model how results are constructed on the basis of inputs and transformations. Here, the ultimate results are the financial ones, but also results related to customers, employees, innovation and the surroundings are mentioned.

The indicators used by Systematic are config. mainly around resource numbers and effect numbers thus focusing on the portfolio of resources and the collective effects produced by the firm. Systematic's management challenges concern the alignment of individuals and organisation through project management activities. It is concerned with how standardised routines and controls will allow high quality to materialise in project-work with customers. The work is characterised by high quality standards and delivery on time. This kind of 'capable' organisation performs through standardised processes and highly qualified employees, the relation between which shows up in high quality products. As Systematic says:

We solve a problem for the customer and deliver a piece of software. In principle, we are a consulting firm that offers knowledge and expertise more than a product-house that delivers a standard solution. My picture of Systematic is that we deliver unique solutions based on the people and processes we have. ... Our TQM project is closely related to our intellectual capital project. It is about processes and we want to include more measures about our projects' timeliness in the statement.

Here, Systematic suggests that organisational processes—linking employees, customers and technologies—be at the core of knowledge management activities. The development of project management systems, quality, and time are

parameters of the management activities set in motion to improve in the areas suggested by the business excellence model (see illustration in Case 2), i.e. customers, innovation and employees. It is a model of the 'income statement' of intellectual capital as it seeks to explicate what are singled out to be the links between efforts and results. Systematic's management challenges emphasise collective arrangements, incorporating people, technology and customers in one move:

When we start writing about time, then such a measure is hard to neglect for the firm, and when we publish assessments made for our quality and project management activities, then there is only one way ahead, and that is upwards. Then you get the interest of customers, suppliers and employees, and the internal pressure to improve increases dramatically.

People are important here, but they are always part of an arrangement whereby the priorities made public through intellectual capital statements are part of a process of collective improvement. For Systematic, the statement is more than a description of the position of intellectual resources. It is a co-producing value, which arises from the combination of structured management systems and the mobilisation of 'psychic energy' or 'motivation' vis-à-vis both 'external' customers and 'internal' employees. The model works such that—in a sense and to a degree—all elements, which are heterogeneous, consisting of people (both 'internal' and 'external') technology, management principles and the pages of the intellectual capital statement, form a collective system of practice beyond the mere technical. Here, intellectual capital statements 'refer' to knowledge management activities that are organised around TQM mechanisms set in motion to create a throughput of projects.

4.3. *Carl Bro*

Carl Bro (www.carlbro.dk), a Danish engineering company, in Case 3 tells a story of intelligent solutions, which is a metaphoric statement of what

Case 2: Systematic’s management challenge, visualisation and numbers

<p><i>Systematic’s most important resource is knowledge. The foundation of the company is based, first and foremost, on the knowledge and competency of our employees (human capital), but also the knowledge and experience of our customers, processes and technologies (structural capital).</i></p>	COMPANY MODEL		
	FOUNDATION	EFFORTS	RESULTS
Category \ Form	Effect numbers	Activity numbers	Resource numbers
Employees	<ul style="list-style-type: none"> * Absence due to sickness (days/employee) * Total employee satisfaction * % of employees perceiving Systematic as a satisfactory/very satisfactory workplace 	<ul style="list-style-type: none"> * Training days (employee/year) * Training investment (employee/year) * Size of project teams * Team member participation in different project phases 	<ul style="list-style-type: none"> * Staff number * Average number of full-time staff * Staff distribution on different tasks * Average age of staff incl. % under 40 * Number of software engineers vs. number of staff employed in administrative functions * Intake vs. reduction of software engineers * Professional software experience - total number of years * Professional software experience - average per software engineer * Educational profile * Cola-index (pr employee)
Customers	<ul style="list-style-type: none"> * Total customer satisfaction * Duration of existing customer relationships * New strategic customers during the year * % of customers who would recommend Systematic 	<ul style="list-style-type: none"> * Customers visiting Solvejg’s lunch buffet * Participation in research projects 	<ul style="list-style-type: none"> * Distribution of turnover between projects and own products * 5 largest project customers in % of project turnover * 5 largest licence sales in % of product turnover * Export’s share of turnover * Number of licences sold during the year * Active project customers during the year * Active project customers during the year (Defence vs. Non-Defence)
Processes	<ul style="list-style-type: none"> * BOOTSTRAP process assessment * Software Development Performance (5 positions) * Score in European benchmark survey of software companies * Own products share of turnover * Average response time for calls to switchboard * Total telephone service index (share of calls completed in first call) * Number of platforms IRIS is compatible with * Employee satisfaction with ‘quality and efficiency of processes’ * Customer satisfaction with ‘quality of services and products’ * Pizza-index (per employee) * Quality certificates (ISO 9001, AQAP) 	<ul style="list-style-type: none"> * Consumption of internal hours on Software Process improvement * Investment in product development * Investment in process improvement * Total investments in innovation activities (incl. Percentage of group turnover) 	
Technology	<ul style="list-style-type: none"> * Employee satisfaction with ‘office premises’ * Number of hits on web-site per day * Bicycle index (% of employees using a bicycle as their primary means of transportation to work) 	<ul style="list-style-type: none"> * Investment in computer equipment * Investment in premises and office equipment 	<ul style="list-style-type: none"> * PCs/workstations per employee * Number of servers in network * m² office space

intellectual capital is to produce. The model that organises the numbers is a break-down of intellectual capital into components which results in seven different forms of capital to be reported: human capital, customer capital, image capital, innovation capital, process capital, and IT capital.

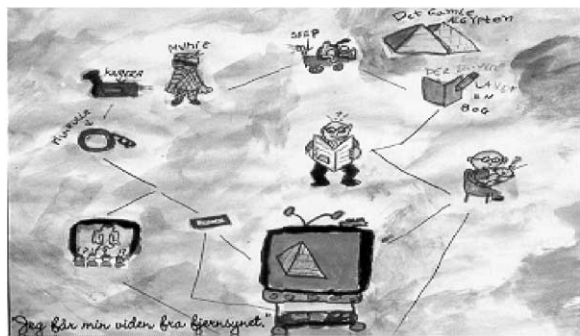
Carl Bro’s story is backed up by a set of numbers, which focuses intensely on portfolio indicators but also on effect indicators. This is a model of a ‘balance sheet’ of intellectual capital where its elements are treated as separable ‘assets’ that can

be grouped in the seven categories (human, customer, image, innovation, process, and IT capital) each constituting a form of closed description. The model does not describe the throughput process, as in the case of Systematic, but rather it singles out the types of resources that constitute the resources of the firm.

Like Dator, Carl Bro’s intellectual capital statement has a set of bold visualisations of knowledge. One of Carl Bro’s visualisations is a drawing made by Ernst, an 11-year-old schoolboy, who draws

Case 3: Carl Bro’s management challenge, visualisation and numbers

Our national and international services require innovation and cultural sensitivity. Our employees strengthen their abilities by representing Carl Bro group locally and internationally. This makes it easy to work across borders and cultures. The Carl Bro group delivers intelligent solutions by constantly being one step ahead strategically and professionally. This requires a broad spectrum of expertise. Therefore the firm has a continuously increasing number of employees with different backgrounds. Through co-operation across these backgrounds we reach our common goal – intelligent solutions.



Category \ Form	Effect numbers	Activity numbers	Resource numbers
Employees	<ul style="list-style-type: none"> * Share of satisfied employees 	<ul style="list-style-type: none"> * Investment in training (employee/year) * Share of employees with updated development plan 	<ul style="list-style-type: none"> * Number of staff * Number of women vs. men * Distribution of age * Educational profile * % of staff working abroad
Customers	<ul style="list-style-type: none"> * Customer satisfaction * Image amongst managers of other firms * Image amongst students (% seeing Carl Bro as an ideal vs. potential future employer) 		<ul style="list-style-type: none"> * Distribution of turnover public vs. private sector customers * Distribution of turnover on centres of expertise * 5 largest customers share of turnover * 10 largest customers share of turnover
Processes	<ul style="list-style-type: none"> * Share of employees satisfied with the administrative system * Total number of first-time sales on new concepts/products * Number of first-time sales on new concepts/products per employee 	<ul style="list-style-type: none"> * Total number of innovation projects * Number of innovation projects per employee 	<ul style="list-style-type: none"> * Number of projects involving different sectors of the company * Share of interdisciplinary projects of all projects * Share of projects involving different business units * Share of turnover from projects involving different business units
Technology		<ul style="list-style-type: none"> * Investment in IT per employee 	<ul style="list-style-type: none"> * % of employees with the possibility of teleworking * Size of shared knowledge data base in gigabytes * Number of shared knowledge documents on Intranet

the network of elements necessary to transport the pyramids to his TV set (see Case 3). At the bottom of the picture, Ernst writes that “I get my knowledge from TV”, and he goes on to illustrate all the elements necessary to bring the pyramids back across 4000 km and 4000 years to his living room. It takes a jeep to get there, a mummie to create a plot, a camera to record it, a film to retain it, a cassette to edit the film, a cinema to stage the story of the mummie, and a video-recorder to disseminate the pyramid. This is a long set of technological resources. Also, however, it takes a book to be written about the pyramids, a father reading about it in a paper, and who then buys the book and reads it aloud to the boy who then is interested in seeing the film. Here is a long net of interestment devices. Ernst’s drawing helps illustrate what Carl Bro’s knowledge narrative is about, namely a complex story of interlinked resources and capabilities that can be communicated in one movement. By implication, this drawing also illustrates the complexities of intelligent solutions which have to rely on multiple and interdependent resources.

Carl Bro’s management challenges are concerned with the organisation of competence centres, which are groups of people who debate certain professional issues pertaining to the professional and scientific basis of their practices. For each competence centre—of which there are dozens—there is a manager who is responsible to get the group going. Here, the ‘capable organisation’ is one where employees have the ability to collaborate with customers and colleagues to provide intelligent solutions. On the one hand, the individual employee by virtue of membership in one or more competence centres has professional knowledge. On the other hand, by certain employee development programmes, the employee is encouraged to move into relations characterised by interdisciplinary thinking, creativity and inventive attitudes. For example, it was stated in Carl Bro:

What do we think the intellectual capital statement says about us? Primarily that we are willing to think and to change, that there is no final story about the firm. Our story is that we would like to be society’s advisors. A

place, a house, where you go if you have a large and complex problem, and so we can work with good ethics and social understanding. This is our story, and the intellectual capital statement supports this, but does not in itself tell it. . . . When I say intelligent solutions, it is about giving the customer the best solution, and it is about having an appropriate basis for it. It is partly about mission, values and vision, and intelligent solutions are ethical—and then we construct all this by having good IT infrastructures, etc.

Carl Bro here explains that there is a whole infrastructure to an intellectual capital statement. First of all, the statement itself does not tell all the details of the firm’s story, which is nuanced, complex and often metaphorical—“intelligent solutions”. Yet it helps create a certain seriousness about the story of intelligent solutions. The story itself plays out different levels of understanding and makes an array of justifications of the relevance of the firm, which is presented as a social asset helping society to solve its problems. The firm also has missions, values and visions, which help employees grow and its solutions are said to be intelligent. The idea of intelligence is a substitute for a complex description of the engineering craft, and its justification is found in appeals to social benefits. The last part of the quotation explains that in order to be able to do this, there has to be a good supply of infrastructural assets. IT has to be in place, organisational competence centres have to be in place, and—to read from the front again—employees have to be outgoing and interested in mingling with society.

The intellectual capital statement helps this more ‘outgoing’ type of person to be realised. For example, it helps changing language towards one, which is more ‘modern’:

Let us take an example, for example in the area of innovation. We have a strategy that our innovation activities have to be very visible internally and externally. We make innovation an asset by counting it so that it is pushed into the area of attention. However, the particular work in innovation is much

more detailed than the indicators, which are one set of tools among others here. This is also what we have to do, just as in the financial area we use a lot of concepts, which are in the financial accounts, but also a lot that are not included.

Such a language game may help the firm change its reputation primarily internally but then in turn also externally:

The intellectual capital statement helps us to change the reputation of the firm. I almost could say that when I came to this firm it was extremely 'dusty' and 'old'. To me, the intellectual capital statement has been a tool to change this. Similarly, our work with mission, values and vision were 'gibberish' and difficult to communicate. Terminology and language are very different among departments in this firm because it is quite clear that certain departments are very innovative without using this word to characterise their activities. They may have managers who do not use the word innovation, and who therefore do not really motivate their employees by engaging them e.g. by saying: 'Come on, hear this, this is so interesting, and we will be doing all this new stuff!' From the perspective of recruitment and retention of employees, it is harmful not to say this, and this is where the intellectual capital statement comes in because its role is to change reality and not only register it.

Here, the intellectual capital statement changes language games. New concepts are invented for processes already in place, but by assigning new words to these processes they change. They change 'meaning' and suddenly it is possible to create 'psychic energy' and 'motivation', which influence the 'object' to which they are directed. Therefore, Carl Bro's management challenge is about organising spaces of expertise that create the foundation for innovative and independent people who are full of initiative. It is a 'capable organisation', which performs such individuals who—when they engage in specific relations to customers—manu-

facture intelligent solutions based on interdisciplinary work, creativity and innovation.

5. Intellectual capital statements in action

These three cases illustrate that intellectual capital statements help mobilise a network of relations. The whole array of relations constitutes the possibility of the intellectual capital statement to be of some form of intelligent value. The indicators help tell a story about the mechanisms by which the firms attempt to construct knowledge management activities, but they do not themselves explain what these are. The story points this out, but in the abstract as metaphors of the effects of the firms' doings, and in a more concrete list of activities concerning knowledge management challenges that the firms put in place. Dator reports primarily employee indicators, and it has a story about the human brain and heart necessary to conduct good business. Systematic is concerned with the transformation of actions into effects—including financial effects, where such things as quality control systems and time are structural mechanisms to hold knowledge effects in place. Carl Bro separates between 'assets' and suggests that the individual type of asset is significant in concert with other types of assets which is clear from its emphasis on employee development, infrastructure, and customer relations at the same time.

All firms are interested in many aspects of the development of intellectual capital, but their priorities hereof make their efforts different and tied to the local situation. All firms develop their intellectual capital statement both in terms of numbers and in terms of sketches and stories. They all explain how the intellectual capital statement is concerned with identifying, managing, and sharing knowledge. Firms assemble their own configuration of management challenges to this end. This is why it is necessary to accompany each and every set of numbers with an interpretation, and the stories and the sketches help accomplish this. The three elements of the intellectual capital network go together. They, together, constitute how intellectual capital relates to the management of knowledge in the individual firm.

5.1. *Mobilising intellectual capital statements*

‘Knowledge’, ‘innovation’, ‘cultural sensitivity’ are key words in the narratives constructed around the three firms. Dator and Systematic use ‘knowledge’, while Carl Bro uses ‘innovation’ and ‘cultural sensitivity’. These are high level images striven for in the three firms. However, it is not easy to see what they actually mean and it is not easy to see how they distinguish themselves in terms of preferred management actions. Therefore, in all three firms, there is a more specific translation process, which allows them to be attached to certain practices. These practices are different in the three firms.

In Dator, the management challenges focus on attracting people and making them part of a community of practice with its own ways of working and communicating. These develop project leaders that can act in practical situations characterised by complex technical, organisational and social relations. Here, the management actions tie ‘knowledge’ to persons. At least, the moves made to underscore knowledge are about persons. The result, however, is not only a local personal kind of knowledge. Working through and on persons, the management of Dator also crafts knowledge as a collective entity. The strength of the individual is (partly) related to the collective ability to support him or her even over long distances. It installs ways of creating a competent person vis-à-vis the ways of working that are part of Dator’s social milieu. Therefore, the ‘initial’ centring of the person ‘results’ in a more structural conception of knowledge as ingrained in the milieu of the firm. The visualisation of a person with ‘heart’ and ‘brain’ supports the knowledge narrative and the management challenges, as it dramatises the mechanics of the management challenge. It shows that the parameters of management are concerned with the attraction of ‘brains’ and of the development of ‘hearts’. This is beautifully, and artfully, demonstrated by Dator’s visualisation. There is but a small step from Dator’s visualisation to its numbers. As shown, all numbers are about the human resource management issues: employee profiles, age, number of staff, and investments in employee training and

development. These indicators typically concern the list of resources enjoyed by Dator and are thus a matter of portfolio management activities, and also a bit about the activities management puts in motion to develop this resource-base.

Systematic also uses ‘knowledge’ as a narrative of the firm’s identity, but the ‘referents’ of knowledge are different from Dator’s ‘referents’ of knowledge. Systematic’s translation of the broad narrative of ‘knowledge’ is primarily into management challenges, which emphasise the collective, or organisational, conditions for managing throughput of a firm producing complex services and products. The management challenges emphasise efficient and high quality processes. The mechanics of this challenge is to install assessment procedures, quality controls, efficiency measures and customer satisfaction measures. Here, the narrative of ‘knowledge’ is not primarily executed against the person, but rather around the skills, technologies and procedures that work together to define ‘knowledge’ as a collective endeavour. This is a mechanism whose elements are defined as employees, customers, processes and technologies and which are all subordinated to the flows of services and products that are the collective effects of Systematic’s work. This is what it is: Systematic’s work, not employees’ work, not customers’ work, not technologies’ work. Systematic’s work! This idea is supported by the visualisation that shows the firm as an input/output model where the efforts performed by management leads to financial results in the other end. This is a model where managerial action plays an important role in co-ordinating the various kinds of resources—including plans, people, buildings and procedures—toward intermediate goals in the form of employee satisfaction, customer satisfaction and effects on society, and ultimately towards financial results. This is also clear from the battery of numbers used. There is a heightened emphasis on the effect measures, which identify the productivity of the firm’s total activities.

In Carl Bro there is a knowledge narrative of ‘innovation’ and ‘cultural sensitivity’. This narrative is translated into a set of management challenges, which emphasise the collective ability to create solutions. Compared with Systematic,

where the collective ability is reflected in effect indicators, Carl Bro is more interested in the resource base, which is indicated by numbers of the portfolio of resources. The mechanics of management is here the development of a set of organisational capabilities built up around e.g. competence centres and in bringing a new language of innovation to the organisation. Here, the narrative of 'innovation' is concerned with transforming employee through providing a new vocabulary of innovation and letting this motivate them to engage in a new model of talk and communication with customers. To support this, the introduction of competence centres reflects the idea of being at the forefront of technology and scientific knowledge. Such a management challenge is (partly) supported by the visualisation of the network of competencies necessary to conduct this strategy: employees, customers, image, innovation, process and IT. These are managed by setting up managers for each area. Such a mechanic of management reflects the orientation towards making the whole set of interrelated competencies collective. It may be that the individual is a link to the environment, but the individual carries competencies that are not his or hers. Individuals stand for competencies which are not theirs. This is why the constellation of intellectual capital is not 'person-centred' per se but more a matter of a collectivity, which requires the individual to be of a certain kind.

This is also why Ernst's drawing of knowledge networks beautifully captures the ambition of Carl Bro's vision with knowledge management. It draws together heterogeneous elements in a move towards improvement of users' value of its service. A grand knowledge narrative, indeed.

5.2. *The intellectual capital statement as a centre of translation*

These examples illustrate how the intellectual capital statement is a *centre of translation*, which—acting on other settings—translates the world of the firm, mobilises and musters (new) resources inscribed in the name of intellectual capital (cf. Latour, 1990, p. 26). Thereby, the intellectual capital statement is a technology for acting at a

distance. It is a centre where the world of the firm by way of a series of transformations is transported, then combined, superimposed and calculated upon, calculations thereby being only a (small) subset of the translations being performed in the centre (Latour, 1987, p. 238). The 'grand narrative', or the plot, of the intellectual capital statement explains how the inscribed and mobilised resources are shown and related to each other in one presentation.

In this way it translates each of the elements by offering new qualities to the inscribed entities, whilst at the same time constructing completely new ones. That is to say, each of the elements of the intellectual capital statement is qualified as entities in themselves by being brought to the statement, and at the same time, the whole statement constructs a new power-relation. It is namely neither about the story per se, about the sketch per se, nor about the numbers per se. It is about the combination of them all and the power they mobilises to act at a distance. That is to say, the centre of translation impacts on the firm. It constructs hiring policies, organisational competency centres, new organisational vocabularies and languages, and mechanisms for productivity enhancement. This is why the inscription of an intellectual capital statement is not merely the narration, the visualisation and the numbering of the 'state of affairs'. The inscription helps the power of the centre of translation to change things, or "to force others to go out of their ways" (Latour, 1990, p.26). To be this powerful, "settings strive to become centres by mobilising everything at hand and tying their claims to as many resources as possible". (Latour, 1991, p. 161). Intellectual capital statements hold employees, customers, technologies and processes in place and claim their resources in the name of a collectivity. The material out of which such a statement is fabricated—paper, colour and ink—is paradoxically weak compared with the strength of the relations intellectual capital statements organise. However, this is what centres of translation can do if they are able to hold all these elements in place. The mechanics of holding together is a piece of work, because it is not merely a juxtaposition of elements on paper. It is more. It is the whole production of

the relationships between the elements, and therefore the intellectual capital statement adds to the translation by demonstrating how the efforts to bring elements in are conducted. That is, intellectual capital statements not only show numbers of people, customers, processes and technologies. They also show how those numbers are put to work in order to, firstly, be an account in conjunction with narratives and visualisations, and then, secondly, to act back on the setting from where the numbers came. It is not only a representation of a state of affairs; it is a translation and an act of power.

Knowledge is not easily definable and accessible, particularly since for it to be productive, people have somehow to be ‘motivated’. Sharing cannot be ‘commanded’, ingenuity cannot be ‘installed’, creativity cannot be ‘fabricated’. They all have to be ‘motivated’. In all these situations, ‘motivation’ is a quite particular form of productivity. It is the mechanism, which brings white-collar productivity in place. When ‘motivation’ is there, people will act intelligently and creatively and thus create sensible solutions. This is why, in the stories presented in the three firms, people must have a place. They are not, however, prior to or independent of organisational arrangements.

This is also why ‘knowledge’ is a strange resource in firms. It is not independent of organisational activities already in place. This can be seen in relation to the kind of knowledge that is presented in intellectual capital statements. Here knowledge and power are related and the interest in knowledge derives from managers’ interest in controlling organisational arrangements. The categories invented via intellectual capital statements allow managers to act at a distance because the transformative aspirations managers may have require a mediating technology of managing which can help determine whether organisational activities are ‘right’, are ‘sensible’, are ‘on the correct track’, or merely ‘appropriate’. The intellectual capital statement allows managers to ask such questions about the resource base of the firm. The relationship between power and knowledge, of which Foucault talks, is one where the aspiration to manage also shows up in aspirations to manufacture a technology of managing that can

function as a lever to install more visibility about the management of the portfolio, qualification activities and productivity of resources.

Why would they want to change identities and organisational capabilities? Probably Lyotard’s point that ‘good’ knowledge is saleable knowledge is important here. The knowledge management activities are interesting not because they produce knowledge accredited by criteria of ‘Science’, but because it has exchange value. This is where knowledge management activities go. They have to be crafted in such a way that they support the pursuit of financial value—not only intellectual value.

5.3. Making knowledge manageable

Like the economy in the eighteenth century through statistics was drawn away from the households into the realm of the nation (Foucault, 1991), through intellectual capital statements in the twenty-first century knowledge is drawn away from the invisible inner space of individuals into a light where government is made possible. It is established as a managerial issue in relation to the firm as a collectivity, and the future as actionable is made possible. The firm’s capacity to act and the future are drawn through the process of inscription, which intellectual capital mobilises, into a space of accounting and made amenable to intervention at a distance. This is parallel to financial accounting’s ability to draw the plethora of daily actions into a calculated space on which actionability may be performed.

Like statistics in the eighteenth century could produce ‘new’ characteristics of the economy in shifting from the household to a political economy, the work in the twenty-first century to put the firm’s knowledge resources and knowledge management activities into numbers (and narratives and sketches) gives them new characteristics. Knowledge management is moved from the inner spaces of the individual to the open space constructed via numbers (and narratives and sketches) of the intellectual capital statement. Through such a process of re-centring, the traditional constant idea of knowledge as essentially an individual phenomenon is questioned. The process of

putting numbers onto knowledge management activities constructs new bundles of organisational relations and thus creates new conceptions of states of affairs and relations, which did not ‘exist’ prior to their bringing into visibility through numbers.

Metaphorically, firms’ ability to activate knowledge is lifted from the individual’s dark, tacit inner space into the light of the numbers where it is made amenable to a wide set of possible management actions. This re-focusing of the knowledge management via a managerial technology such as the intellectual capital statement allows managers to make it a larger project than the individual. Knowledge management is about aligning all the firm’s knowledge resources, which implies a form of co-ordinated effort to bring employees, technologies, processes and customers together. The set of relations between these elements stand out in concert, and individuals’ tacit knowing is but one—among many—elements hereof. Intellectual capital statements thus help illuminate knowledge management, established through inscriptions:

All these inscriptions can be superimposed, reshuffled, recombined, and summarized, and totally new phenomena emerge, hidden from the other people from whom these inscriptions have been extracted (Latour, 1990).

Through such a process, intellectual capital allows a translation of knowledge management into activities about employees, customers, processes and technologies, and the work to relate them to numbers makes knowledge an organisational and collective endeavour rather than merely an individual one.

Analogously to the process by which financial accounting drew the economy out of the chaos of daily life’s details, intellectual capital statements draw knowledge out of the disparate daily situations, compare them in new ways and identify new relations. Then they are ‘put back’ into daily decision making, and new forms of co-ordination across the firm are established as new forms of visibility are acted upon. In this way, knowledge is established as a managerial agenda and drawn away from the ‘darkness’ of individual cognition

and tacit knowing into the light constructed around a technology of managing organised around numbers (and stories and sketches). Here, knowledge resources are combined in networks of competency relations, and knowledge management is about constructing expressions that can help illuminate how knowledge resources work and result in effects. Knowledge management is not about constantive knowledge but about performative knowledge (cf. also Austin, 1976). It is concerned with relations between various disparate types of knowledge resources that are individually developed to engage more tightly in networks that make up competency-relations and bundles of complementary resources. The intellectual capital statement help assigning numbers, stories and sketches to such relations in a way such that knowledge is ‘lifted out’ of the darkness of individual tacit knowing and brought on such a form, that it can be addressed, evaluated and acted on at the distance.

6. Conclusion

Intellectual capital is no ordinary accounting concept. It is a new concept often carried more by huge market-to-book ratios than by its own work. In this paper, its own work has been analysed on the basis of empirical evidence from 17 firms, and more specific evidence from three of these firms. The analysis indicates that intellectual capital is in search of a ‘referent’. To merely say that it somehow reflects the difference between market values and book values of a firm is inadequate. When firms talk about intellectual capital statements, they are expressing their interests in controlling and managing the firm. Therefore, as practice, intellectual capital is about the activities managers can put in motion in the name of knowledge. These activities turn out often to be about employee development, restructuring organisations and developing marketing activities.

Such activities, however, do not carry a lot of power per se. Therefore, the firms express in stories and narratives how ordinary daily life is actually interesting and compelling. To do this ordinarily, daily life has to be related to grand

narratives of innovation, the information society and ‘we-live-from-knowledge’ claims. For this story to be communicable, it has to be drawn up. There is a challenge to create a persuasive intellectual capital statement, and therefore, it consists not merely of numbers, but also of stories/narratives and visualisation/sketches that allow a series of translations to take place. The story communicates the firm’s functioning, the sketch creates boundaries around the theme termed intellectual capital, and the indicators relate to the sketch certain numbers and create a form of seriousness as the story can be ‘audited’. The numbers are loosely coupled and they ‘cohere’ for their relationship to the story and the sketch. It is not a bottom-line in itself. They are part of a narrative where they grant some form of credibility to it so that it helps promote the story and avoid contradicting it. This reading takes intellectual capital to the local stories and strategies, it is set in action to explicate and defend.

The broad types of managerial actions made possible through intellectual capital statements are closely related to its numbers. Its numbers are powerful because they inscribe and monitor management’s efforts. This is why there is also a broad set of classifications more directly linked to the discourse of management than to the local assembly of stories, numbers and sketches in the statement. This broad classification of management actions has as domains for intervention only four separate types: employees, customers, organisational processes and technology. These are the objects that management can influence in the name of knowledge. The classification also suggests how intervention can be accomplished namely through portfolio management, qualification management and productivity management. When combining the domains and the ways of intervening in an analytical model, broad statements can be made about firms’ management activities across the domains that can be read out of the indicators actually being used in the intellectual capital statement. For the 17 firms, it is clear that the number used to illustrate the work to enhance knowledge management covers all possible combinations of the domains and the ways of intervening.

There is thus a question of what networks intellectual capital statements actually mobilise. From the perspective of writing the text—its production—intellectual capital mediates the phenomena it organises, such as people, technologies, strategies, management issues and technologies of presentation. From the perspective of reading—the consumption of intellectual capital statements—the network is a different one as readers attempt to retract from the particularities of the situation and see it in a broader context involving their interest in comparing with other situations. Both from the perspective of writing and reading are the three types of intervention in the form of resources, activities and effects interesting and relevant. They may be mobilised differently though, as they weave in and out of the situation depending on whether they are taken into illustrating the specifics of a knowledge narrative, or whether they are mobilised to audit the implementation of a knowledge narrative.

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