Rethinking the liaisons between Intellectual Capital Management and Knowledge Management

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Abstract
Intellectual Capital Management (ICM) and Knowledge Management (KM), two highly popular topics in current management discussions, are often bracketed together. The common understanding of ICM is that concepts of measurement, reporting and valuation most distinctively define this perspective, whereas KM connects debates about organizational knowledge with possibilities and limitations of management. That raises the question of how the management focus on knowledge in KM discussions is connected to the valuation and measurement approaches of ICM. An extensive review of the literature shows that knowledge plays a background role in Intellectual Capital (IC) measurement discussions. Referral to knowledge as an intangible asset appears more rhetorical than based on in-depth understanding of what knowledge as an organizational resource or capability is or is not. More particularly, the predominant view of knowledge in IC measurement discussions is a neo-functionalist, possession approach, even if flow elements of knowledge are used to supplement stock elements. Critical understanding of knowledge, for instance, as practice-based dispute, are virtually absent from the ICM discussions. What the blind spots identified in the review highlight is that ICM and KM discussions, which are presently mostly developed in isolation, should set up more meaningful and elaborated liaisons than are currently established. Two important areas for building such liaisons include (1) the perusal of the contextual, possibly disputed and power-related nature of knowledge in relation to measurement and (2) developing a systematic approach to understanding what measuring or not measuring does to organizational knowledge.

Keywords
intellectual capital; knowledge epistemologies; knowledge management; knowledge valuation; measurement

1. Introduction

Intellectual Capital Management (ICM) and Knowledge Management (KM) are often bracketed together [1, 2]. At first sight this appears plausible. Many authors use the term ‘knowledge’ in the definition of both concepts. For instance, IC is defined as ‘the sum of knowledge of the members of an organization and the practical translation of that knowledge’ [3], or more concisely as ‘knowledge that produces value’ [4]. The management of IC (or: ICM) thus almost automatically becomes ‘knowledge management’.

On closer examination, however, the relationship between ICM and KM appears more problematic than suggested by the mere shifting of the words ‘intellectual capital’ and ‘knowledge’ as management object. The common ground that both debates occupy concerns the organizational perspective on knowledge. As several authors argue [e.g. 5–7], a perspective on organizations as knowledge systems builds on the recognition that sustainable competitive advantage depends on the effective and efficient integration of distributed knowledge, that is, relevant knowledge concerning different subjects is available in different persons across different locations. Knowledge becomes organizational because of its...
distributed nature. An interpretation of organizational knowledge as distributed capability (the KM outlook) is not easily reconciled with an interpretation of organizational knowledge as capital (the ICM outlook), which implies a direct relationship with organizational value. Seeing knowledge as capital leads to a specific and narrow concept of management, where valuation and measurement become key concerns on the manager’s agenda. Adapting and developing this concept of management is not unproblematic. Several authors [8, 9] point to the tensions between knowledge as a social phenomenon and the economic conditions that allow the appropriation of its value. Initially KM debates, particularly fuelled by consultants and practitioners [10], focused on the economic and organizational benefits from KM programmes (Driver talks of ‘Utopian sunshine’). In recent years, many contributors to the KM debates, particularly in academia, have raised serious doubts as to whether KM, when focusing mostly on ICT and on normative, remote control, will effectively drive out knowledge. With the increased popularity for social-practice approaches to knowledge, which are now an integral defining element of current KM [9, 11], ICM debates are to be assessed regarding whether they can accommodate these tensions.

ICM, as it is understood here, encompasses ideas and practices regarding knowledge-related value creation and measurement. Differently, KM is considered to be characterized by the sometimes fierce debates around possibilities and impossibilities of connecting management to knowledge (an elaboration of definitions and approaches of ICM and KM is provided in the next section). The central question addressed in this paper then is how the management focus on knowledge in KM discussions is connected to the valuation and measurement approaches of ICM. The connection can be approached in two directions. The first direction starts from the debates of organizational knowledge as a possible object for management (the collected KM discussions) and then asks how that knowledge is represented in valuation and measurement systems (the ICM debates). The second direction takes knowledge-related valuation and measurement (ICM) as the basis, and considers how these systems affect nature and stature of organizational knowledge as a possible object for management. These two elaborations of the central question define the two research questions addressed in this paper. The next section first explores in some more detail the concepts of ICM and KM, as a stepping stone to more precisely defining the different nature of the two research questions. Section 3 deals with the first research question (‘from KM to ICM’), and Section 4 with the second (‘from ICM to KM’).

2. Linking ICM and KM: a forced marriage?

An exploration of meanings attached to both ICM and KM is called for, particularly because both terms appear as umbrella concepts defined and interpreted in many ways. While historic inspections trace the origin of the term IC to the nineteenth century [2], its current popularity undoubtedly owes much to the business press in the 1990s [12]. Through using the attention in the press as a catalyst, ICM emerged as the convergence point of several approaches aimed at identifying other than purely financial indicators of organizational performance, including the Balanced Scorecard, Human Resource Costing and Accounting or Economic Value Added. Defining ICM is not an easy task. As a rule, the ICM literature skips definitional discussions or offers a loose collection of associations with the concept. More attention has been paid to designing approaches for implementing ICM systems [13]. Because of the immaturity of the ICM field [14], discovering unity among the different attempts to provide definitions and definition elements is no easy undertaking. Some definitions focus on value creation; others equate IC with intangible resources or assets (partly comparable to, partly different from the intangible asset or resource that information is); yet others focus on organizational knowledge, placing IC in the gap between market value and book value or seeing IC as some amalgam of a set of categories (e.g. human, structural and relational capital; for an overview, see [15]). Establishing how these different classes are conceptually related to one another is far from trivial. Authors seldom if ever acknowledge that conceptual clashes are inevitable as soon as serious attempts are made to connect the definition classes. Any combination of definitions appears problematic. For instance, wealth and value are not the same. They can be related in multiple ways. Wealth is one possible value and its creation may well clash with the creation of other values. What creates value does not have to create wealth and vice versa. Calling something an intangible resource (which hints at resource management) is not identical to calling it an intangible asset (which points to an accounting perception). Intangible assets can indeed cause a gap between market and book value, but many other factors will play a role here.

No clear and straightforward meaning of the ICM concept emerges from the accumulated definitions offered in the literature. In order to gain a sharper view of what ICM represents we need to look not only at the definitions offered by the field but also at the plethora of practical ICM approaches that have been developed. ICM stands at the confluence of approaches that arose out of discontent with traditional financial accounting principles and procedures [16, 17]. A distinctive feature of almost all ICM approaches is that they try to come to grips with assets that escape registration by traditional financial indicators. The common backbone of ICM perspectives concerns three elements: activity X regarding object Y leading to product Z. Product Z is typically an IC statement or report. Several nouns are used to identify object
Y, including intangible resources or assets, intellectual property, immaterial values, knowledge or organizational learning [18]. What particularly characterizes ICM thinking is activity X. Many verbs are used to identify this core activity of the IC manager, including measuring, assessing, valuing, quantifying, representing, mapping, visualizing or numbering. We use the term ‘measurement’ as an aggregate term not to suggest that all activities are identical or even amenable to measurement, which they are not [19], but to point to a common substratum in their meaning. As the ICM literature review by Kaufmann and Schneider [18] clearly shows, the combined measurement-reporting focus dominates the ICM discussions. ICM developed as an approach for measuring and reporting overall organizational performance aimed at synthesizing wealth-generating aspects into an external report, providing relevant information for decision-makers [20–22]. That focus defines ICM in its most recognizable form and is not an additional feature of the ICM movement, as is evident from Kaufmann’s overview [18]. Consequently, we will define IC as intangible assets that organizations may want to measure for the purpose of assessing their organizational value, or their possible contribution to organizational wealth, which presumes some form of definition and characterization of them. Knowledge comes into the ICM picture as it is recognized as an important and fundamental intangible asset.

If conceptual clarity is not a distinctive aspect of the ICM concept, the domain of KM appears even more as a field lacking clear conceptual order [23]. Not so much a lack of conceptual clarity, as in the case of ICM debates, but a lack of conceptual unity appears to characterize the KM field [8, 9, 23–25]. Table 1 shows some of the divergent interpretations of what KM is about. What the table only implicitly shows is that the field is replete with often fundamental controversies, contradictions and inconsistencies [8, 23]. While older KM ideas lean towards a commodified view of knowledge – knowledge as a disembodied entity – newer KM approaches adopt a combined community and practice focus and lean towards a socially constructed view on knowledge [26, 27]. These newer KM generations have emerged from criticisms of the earlier KM movement, arguing that linking knowledge to management can only make sense via a broader organizational outlook on the meaning and role of knowledge and its connection to issues of management [8, 28]. The main tone in confrontations between newer KM ideas and more received organizational-knowledge ideas is critical: earlier KM is criticized for a mostly implicit, black-boxed, impoverished, internally conflicting conception of knowledge-as-possession [9, 11, 29]. As, for instance, noted by Alvesson and Kärreman [8], the management element in KM does not receive much explicit attention. It is usually defined around management practices and tools, by the description of individual management tasks, or by the identification of sometimes-vague management goals. Again, without claiming to lift all conceptual controversies and vagueness surrounding the concept of KM, we suggest that KM is defined by the fact that it addresses the challenges and tensions involved in combining and confronting the concepts of organizational – or distributed – knowledge and management. In this view, KM does not refer to one particular class of views on knowledge-related issues in organizations (such as defining knowledge strategies or managing knowledge workers), but concerns a more fundamental discussion about the confrontation of knowledge and management.

The question addressed in this paper builds on these conceptions of ICM and KM. KM is seen here as a set of loosely linked debates around connections between knowledge and management that has developed into a field paying ample attention to the tensions and prospects involved in these connections, but paying little systematic attention to measurement debates. ICM, with its focus on valuation and measurement, is perceived as a specification and possible elaboration of what management in connection to knowledge is or should be. The question then is how connections between ICM and KM are to be conceived. To unfold this question it is helpful to describe the basic rationale that connects an organizational perspective on knowledge with the measurement efforts in ICM in four steps (see Figure 1): (a) because of its distributed nature, knowledge becomes organizational and therefore the subject of management; (b) particularly through its distributed nature, knowledge is the basis of organizational value in a broad sense; (c) to assess the key elements of that value, critical success factors or essential variables need to be identified as measurement objects; and (d) the actual measurement presumes establishing the scope and content of the critical success factors by specifying indicators or metrics.

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<th>Approaches to KM</th>
<th>Sample authors</th>
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<tr>
<td>KM as a specific form of strategic management</td>
<td>[6, 30]</td>
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<tr>
<td>KM as a specific class of interventions, such as knowledge repositories, knowledge maps</td>
<td>[31, 32]</td>
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<tr>
<td>KM as the study of possible tensions between technical and human aspects of organizations</td>
<td>[33, 34]</td>
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<tr>
<td>KM as the study of knowledge workers</td>
<td>[35, 36]</td>
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<tr>
<td>KM as the study of challenges involved in combining or confronting individual and group knowledge</td>
<td>[29, 32, 37, 38]</td>
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<tr>
<td>KM as the study of the organizational process of creating, sharing and deploying knowledge and their management</td>
<td>[31, 39, 40]</td>
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The left-hand side of Figure 1 is the homeland of KM debates, with their broad perspective on prospects of tensions involved in perceiving knowledge as something that can meaningfully be subjected to management. ICM discussions, focusing on valuation and measurement, find their seat in the right-hand part of Figure 1. The relationship between knowledge as studied in KM (step a) and ICM’s valuation and measurement perspective (steps b–d) can be approached from both directions (which implies unfolding the overall question addressed in this paper into two research questions). The first research question concerns how knowledge is connected to or recognizable in the IC indicators (from a via b and c to d). The second research question is how the establishment of the measurement system affects knowledge (from d via c and b to a). The relationships involved in the first question are conceptual, as they concern how the definition of what gets measured relates to the definition of organizational knowledge. The relationships implied in the second question are causal, since they involve whether (organizational) knowledge will be affected by measurement. The following two sections address both types of relationship.

3. From organizational knowledge to measurement: issues of constitution and reflection

The first research question concerns how organizational knowledge as it is approached in KM debates is visible in the ICM valuation and measurement approaches and initiatives. As argued above, that question seeks to establish conceptual relationships between the themes of KM and ICM as it is concerned with how the definition of what gets measured relates to the definition of organizational knowledge. The substance of these relationships can be divided into what we will call constitution and reflection issues (see Figure 2). Constitution is concerned with the concept of what the phenomenon is that is being reflected by the indicators. Reflection refers to how the measurement approach builds on a definition of knowledge that leads to measurable variables and specific indicators.

3.1. Constitution of what IC reflects

ICM is almost exclusively concerned with information about organizations as social phenomena [13]. What we know, particularly when the object is social, has to be ‘thought up’ before it can be described [41, 42]. Measurement plays a role in this constitution process because it may provide a filter to label things as knowledge or as its manifestations. What is at stake then is not what defines knowledge per se but the more fundamental ontological question; what is that we know things about? The most typical characteristic of the ICM literature is that ontological issues are hardly ever
explicitly addressed. When some sort of organizational existence pervades the measurement system, a non-problematic existence is typically assigned to the objects that are to be measured. For instance, Pike and Roos [19, p. 244] refer to ‘entities in the real world’ that have to be represented before they can get measured. Another example concerns the criteria for selecting IC indicators specified in the extensive MERITUM approach [43, pp. 17–18], which is an acronym for ‘MEasuRing Intangibles To Understand and improve innovation Management’. Among other things, these should be objective, truthful and verifiable; it should be able to prove that they represent the ‘real situation of the company’ in an unbiased fashion. When some authors point out aspects of constitution presumed in and established through IC measurement, they refer to the IC measurement system as a whole. For instance, O’Donnell [44] argues that ICM research also creates social realities in the ICM field. Jørgensen [45] confirms this view of ‘IC as human construction’. Solitander and Solitander [46] stress that also knowledge-intensive, yet ethically suspect activities (espionage, theft) are used as value-generating processes, and thus concern IC. What all these authors stress is that ICM should not be seen as a neutral, value-free, innocuous or apolitical practice with regard to the objects of its attention, nor as a purely socially situated administrative device, constructed by and for people, and therefore inextricable from and shaped by discussion, concession and negotiation. Intentionally or not, it can be concluded that what the ICM literature almost completely ignores is exactly the fundamental what question, that is, the ontological part of the knowledge discussion. The mostly implicit notion about IC is that it is approached as representing the ‘real situation of the company’ (‘IC as an objective mirror of nature’). The alternative perspective of ICM’s role in ‘creating social realities’ (‘IC as a co-constitutive agent of nature’) is hardly recognized and elaborated in ICM debates.

3.2. IC as reflection of knowledge

Reflection of knowledge in ICM concerns which epistemology underlies the ICM systems. The analysis below will use the standard distinction in KM literature between a cognitivist approach vs a ‘practice-based, social-process’ approach [9, 11, 27]. The cognitivist approach treats knowledge as an object or entity, which, consequently, becomes amenable to conversion, codification, transfer, utilization or commodification. It is labelled as ‘the possession approach to knowledge’ because it resonates with an ‘epistemology of possession’ [29], which represents the traditional understanding of knowledge as something residing in and possessed by people and collectives. A characteristic of this approach is that it relates knowledge to rules, chunks, explanations, memory, information, competence, etc. It sees knowledge as enlightenment, it believes in progress with regard to knowledge as exemplified by a snowball metaphor, considers knowledge as partly separable from people, treats categories of knowledge (tacit vs explicit knowledge; individual vs collective knowledge; declarative vs procedural knowledge, etc.) as separate knowledge types.

The social-process approach relates to what Cook and Brown [29] define as an ‘epistemology of practice’, which stresses that a separation of knowledge from the processes, activities and contexts that produce it ignores its situated, contested and mediated character [47]. This approach stresses the social over the economic side to knowledge [48]. It perceives people as active ‘sense-makers’ and engaged participants rather than receptacles of knowledge [49, 50]. Knowledge is seen as situated practice, culture and symbolic capital. Tacit, explicit, individual and group knowledge are not seen as separable knowledge types but as inseparable, dispensable aspects of knowledge.

3.2.1. Knowledge as rhetoric inspiration for ICM-related activity. To identify types of ICM approaches, Luthy’s much-used taxonomy will be referred to here ([51], see Table 2). Many ICM approaches that appear in the Luthy taxonomy either

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<th>IC approaches</th>
<th>Description</th>
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<tr>
<td>Direct Intellectual Capital (DIC)</td>
<td>DIC methods estimate the monetary value of intangible assets by identifying its various components</td>
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<tr>
<td>Market Capitalization (MCM)</td>
<td>These calculate the difference between a company’s market capitalization and its stockholders’ equity as the value of its IC or intangible assets</td>
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<tr>
<td>Return on Assets (ROA)</td>
<td>In these methods an average annual earning is calculated from a combined tangibles and intangibles average set against the industry average</td>
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<tr>
<td>Scorecard (SC)</td>
<td>These methods start by identifying various components of intangible assets or IC and generate indicators and indices that are reported in scorecards or as graphs. SC methods are similar to DIC methods, except that no estimate is made of the monetary value of the intangible assets</td>
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do not refer to knowledge as their source of inspiration or only mention it in general terms in opening paragraphs, but do not use distinctions of knowledge to guide the measurement design. For these approaches, the question of their epistemological foundations is therefore less relevant. This also holds true for approaches that define and measure IC at company level. These typically produce single variable measures that are independent of the IC definitions adopted by the companies, thus enabling interorganizational comparisons [52]. These include Market Capitalization Methods, such as Tobin’s q, Investor Assigned Market value, Market-to-Book Value [13, 53] and Return of Assets methods, such as Accounting for the Future, Value Added Intellectual Coefficient, Economic Value Added, Human Resources Costing and Accounting, Calculated Intangible Value, Knowledge Capital Earnings [13, 53]. If knowledge is only treated as a category at company level, then the concept itself is bound to remain a black box and the relationship to epistemology plays a background role. Referring to knowledge in such approaches may serve rhetoric purposes, but it cannot be used to justify or distrust any specific measurement decisions. It does not make much sense to relate these methods to any epistemology.

3.2.2. Possession thinking in IC assessment: component-based approaches. Probably more commonly associated with typical ICM terminology are the component-based approaches, either those that provide taxonomies of IC categories (scorecard methods) or those that develop these taxonomies into monetary valuations (direct IC methods). These approaches aim at multi-perspective measurement. The typical way of combining isolated measures of IC aspects with others is found in the scorecard methods. The elements addressed in these approaches can be ordered along three dimensions [20, 54]:

- categories of IC,
- categories of measurement and reporting and
- methods used for data collection linked to the different purposes of IC measurement (reporting, management, etc.).

Given the conceptual focus of this paper, the first two dimensions are most relevant to the present analysis and data collection approaches related to the third dimension are beyond the scope of this paper. By and large, older scorecard approaches, such as the Navigator [55] or the Intangible Assets Monitor [1], are different from newer approaches such as the Danish Guidelines [54], MERITUM [43] or the MMRIC (Measure, Manage and Report Intellectual Capital) model [56] in that they show less systematic breadth in addressing elements of these dimensions.

The first dimension concerns the identification of IC categories. As the literature review by Kaufmann and Schneider [18] shows, these mostly converge around the concepts of human, structural and customer or relational capital introduced by Stewart [12] and Edvinsson and Malone [55]. They have been presented by several authors under various labels, and elaborated into more extensive category listings [15, 18]. The triplet human–structural–relational capital with its synonyms and additions qualifies as possibly the most recognizable mainstream ICM terminology. Human capital (or employee competence) is defined as the knowledge, competencies and mindsets of individuals and teams. Structural capital (or organizational capital, internal structure) refers to knowledge embedded in organizational infrastructures such as routines, databases, rules, procedures, values and norms. Customer capital (or relational capital, relationship capital, external structure) concerns knowledge embedded in customer relationships, market channels, intra-organizational relationships and technological networking embedded in the organizational external relationships [3].

While not all authors provide an identical elaboration of the second dimension, that of measurement categories, the typical train of thought here can be summarized in three steps:

- strategic choices need to be made;
- to justify the identification of key resources and activities;
- which informs the construction of a system of indicators.

Not all systems identify all three steps equally clearly, and some systems include more steps; for example, MERITUM [43] also adds management directives which in the MMRIC model [56] are even elaborated into a KM approach. The question then is how images of knowledge provide guidance in these three steps via a specification of human–structural–external capital (or related categories). The by far most widely used distinction in ICM writings to provide the knowledge outlook is the traditional distinction between explicit and tacit knowledge that is strongly related to the distinction of stock or static vs flow or dynamic features of knowledge. Other distinctions, such as procedural–declarative knowledge or individual–collective knowledge, do appear in ICM discussions, but with much less systematic endurance or elaboration. A broadly endorsed view is that an ICM system would be incomplete if it only focused on
explicit stock knowledge (resources and assets). As an example of that class, consider the Citation-Weighted Patents (DIC method), which takes the number of references to a company’s patent – that company’s property right to a knowledge asset – in other patent information as an indication of that company’s IC. Given the limitations of the epistemology of possession that echoes in the method of Citation-Weighted Patents, it has only limited value as a reflection of knowledge when used as a stand-alone approach. In other ICM approaches, such as the Danish Guidelines [54], or Lev’s Value Chain Scoreboard [57], a reference to patents is combined with other measurement objects and indicators, which makes it more appealing in light of the present discussion [58].

3.2.3. Possession thinking in IC assessment: stock and flow approaches. The distinction between stock and flow, or explicit–tacit, guides the measurement discussion in all three steps identified above. In step 1, it is recognizable that particularly the tacit and dynamic sides to knowledge are strategically important, and therefore need specific attention in measurement efforts [e.g. 59, 60]. The distinction is most readily recognizable in step 2, which is typically elaborated around the distinction between resources and activities (or related terminology). A specification of which key knowledge stock and flow issues are discernible amongst IC assessment methods is presented in Table 3.

Not all methods are equally specific about the need to include a flow dimension linked to the stock dimension. For instance, the IC Audit [61] is almost fully constructed around the auditability of assets (stock), with a marginal role for flow elements. Also, the Skandia Navigator [55] does specify a process component in IC, but treats it as no more than a separate container for possible indicators. It is interesting to note that, when ICM systems do embrace flow aspects, KM activities may also act as sources of inspiration for including measurement indicators [62].

Step 3 concerns the determination of IC indicators. Examples of proposed IC indicators are presented in Table 4 ordered around the categories of human–structural–relational capital because that distinction appears as the most popular in ICM systems (several additional studies extensively report on possible IC indicators ordered in these three categories, e.g. [56, 63]). Suggestions or guidelines for choosing indicators in step 3 typically lean towards either stock or flow thinking. While methods that embrace concepts of flow and stock argue from resources or processes towards indicators, the reversed relationship from indicators to either stock or flow measurement objects is much harder to establish. Some types of indicators predominantly radiate an outlook of stock, such as ‘number of patents filed’ [43] or ‘number of supported workstations’ [64]. Also indicators have been suggested that would radiate a clearer flow character. The Skandia Navigator [55] includes financial flow variables such as revenue, profit or return on assets. Several authors develop their ICM approaches around such concepts as competencies, skills and expertise that are more dynamic than pure stock concepts [61]. In most indicators, however, both flow and stock elements are readily recognizable. Linking the number of

| Table 3. Knowledge stock and flow issues in IC assessment methods |
|-----------------------------|------------------|------------------|
| IC method                    | Authors          | Stock issues     | Flow issues                                   |
| Intangible Asset Monitor     | [1]              | Stability        | Growth and renewal                            |
| IC Index                     | [3]              | Assets           | Transformation and combination of assets      |
| Value Chain Scoreboard       | [57]             | Intellectual property | Value chain of discovery, learning, implementation and commercialization |
| Knowledge Audit              | [2]              | Key knowledge assets | Key knowledge processes |
| MERITUM                      | [43]             | Intangible resources | Intangible activities |
| Danish Guidelines            | [54]             | Indicators on assets and resources | Management activities |

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<th>Table 4. Examples of proposed indicators for IC</th>
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<td>IC categories</td>
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<tr>
<td>Human capital</td>
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<td>Structural capital</td>
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patents with citations, as mentioned before, introduces a connection between patents as stock and the flow concept of using these patents.

Several authors, including Mouritsen et al. [68] and Bukh et al. [69], criticize the older scorecard approaches for ignoring the relationships between the categories and the individual indicators. These authors argue that knowledge particularly resides in these combinations and not in the individual categories or measurement objects. For instance, they stress that the combination of what people and organizations know, either in its unstructured or codified form, has a multiplicative rather than an additive nature [21]. A focus on processes where these multipliers are established is thus called for, as well as the need to root ICM-related initiatives in the overall organizational strategy (step 1). Many authors [3, 21, 68] emphasize that IC measurement systems should be devised as something intrinsic to strategy and not as lying outside it. The strategy is to develop a rationale for choosing among resources and processes, for connecting the categories used and for preferring some indicators over others. The idea of a knowledge narrative that the Danish Guidelines [54] use provides an example to illustrate that the stock–flow distinction also pervades the first step. That narrative explains the ‘use value’ or customer value of the product or service offered by the company by arguing how the user’s and the company’s knowledge resources (stock) are merged (flow) into a whole.

3.2.4. Social-practice approaches in IC assessment. While there is no shortage of hints of flow elements in ICM methods, it is much harder to find substantiated elaborations of these elements towards social-practice approaches radiating an epistemology of practice. To qualify as such, the IC measurement system would have to elaborate at least some elements of understanding knowledge as ‘situated and pragmatic’ (historically situated talk), ‘contested and political’ (inextricable from culture and power), ‘provisional and reflexive’ (active and creative constructions of truths), ‘mediated by linguistic and technological infrastructure’ (collective jargon as action enabler) and ‘emotional as well as rational’ (cognitive and affective states as one) [70]. The most clearly recognizable reference to such categories is visible in the work of O’Donnell and O’Regan [44, 71]. These authors build on Habermas’s theory of communicative action. They argue that, via the theoretical insights from this theory, ICM approaches can attempt to grasp the intangible nature of IC value creation. A core element in Habermas’s theory is the understanding that human action not only needs to be understood as goal-directed action, as the typical ICM approach implies, but also concerns more fundamentally communicative action aimed at gaining intersubjective understanding. This puts the focus on processes of interpretation of situations achieved by negotiating definitions of that situation. Mapping the quality of contributing concepts and processes, dialogue, communication, collaboration and argumentation would then appear to provide core elements of an IC statement. Without giving a detailed elaboration, O’Donnell [44] argues that subjectivist research methodologies (symbolic analysis, hermeneutic diagnosis etc.) could be instrumental in IC measurement systems to complement teleological ICM thinking with a focus on interpretations. Another example can be found in the work of Jørgensen [45]. Referring to such authors as Wittgenstein and Foucault, this author stresses that ICM is a language game shaped by power. Here too, intricacies of dialogue, conversation and dispute play a central role in understanding IC as a stepping-stone towards mapping. Jørgensen proposes that a genealogical analysis would therefore be essential – and instrumental – to unravelling ICM discourses. However, Jørgensen’s work elaborates the idea of a genealogical analysis for the history of ICM thinking, and develops no clear philosophy regarding measurement of IC within companies.

From our literature review, it appears that hardly any studies use theoretically grounded categories of practice-based thinking to develop an understanding of how to build an IC measurement system. A more fully fledged practice-based approach to IC measurement that comes close to how measurement concepts are developed based on possession thinking is clearly absent.

4. From measurement to organizational knowledge: issues of causation

Not all authors would agree that it makes sense to discuss ICM from a reflection point of view as was done in the previous section. For instance, Jørgensen [45, p. 79] argues:

that IC does not first and foremost gain its legitimacy from any capacity to explain reality; nor is it solely the means for some neutral representation or measurement of reality. IC gains its legitimacy from its capacity to change social reality, to intervene in social reality, to allow ‘action to be performed at a distance’.

Also, Mouritsen and Flagstad [72] argue that the measurement system itself constitutes the organizational managerial reality, and is best studied as such and not as some alleged representation.
The intellectual capital statement is a presentation – it presents the KM activities of the organization in text and numbers. It does this, however, in a way that is hardly simply mirroring these activities. Managers and employees are thus alienated – they are put in a strange situation where they are called on to reconsider their understanding of the organization. [72, p. 86]

Such an understanding of ICM draws attention to the effects ICM measurement produces. It considers IC and its measurement as input and not as output [73].

This focus on IC measurement effects brings us to the second research question discerned in the Introduction, as it concerns how IC measurement in a causal or influencing sense affects organizational knowledge (cf. the arrow from right to left in Figure 1). It should be stressed that this review paper does not address the question of whether or not IC causes value, as assumed in the ICM literature, but until recently [74–77] not empirically studied. Also we are not focusing on all possible effects of measuring IC, for example, the question whether or not it is profitable to engage in ICM activities, a question that has recently received some attention in the literature [59, 78, 79]. The focus here is more specifically on causal effects of measuring IC on organizational knowledge. A distinction can be made between intended effects as deducible from the intentions to draft ICM systems, the unintended side-effects and the actual effects after these systems have been established (whether intended or not). As with the possible audiences of information valuation [80], the intended effects that ICM authors present can be sorted into external and internal effects [69], each with their own – different – sets of indicators [81]. These classes of effects are now discussed in some more detail.

4.1. Intended effects of ICM: external to the organization

The agents of external effects concern users of IC statements outside the organization drafting these statements. Two subclasses can be distinguished. Firstly, ICM efforts are expected to have effects for public relations (PR). IC users are then potential employees, other companies, the press, etc. Bukh [69] lists various external objectives that classify as intended PR effects. These include ‘to show that the organization is innovative’, ‘to show that knowledge is important’ or ‘to attract new customers’. Sveiby [13] warns against using the assumed PR effect, because it may be a short-term effect that will become counterproductive in due course. Secondly, ICM serves purposes of reporting and external validation [82]. IC users are then external company stakeholders, accountants, other companies and the business press. Effects on organizational knowledge do not play a central role in these motives. For the purpose of this paper it is relevant to assess that, in the intended external effects described in the ICM literature, the knowledge connection is mostly implicit. When the term knowledge is used – for example, the expectation that it will radiate a focus on knowledge – the knowledge concept remains a black box.

4.2. Intended effects of ICM: within the organization

The second class of intended effects concerns aspects of internal organization. Agents of internal ICM effects are first and foremost decision-makers within organizations. The proposed internal effects of ICM concern three subclasses. Firstly, effects are expected at the level of management in general. For instance, in a review paper Andriessen [83] refers to ICM authors who state that ‘what gets measured, gets managed’ [3, 12] and that IC measurement will improve the management of intangible resources. Secondly, ICM is proposed as a way to enhance strategy. ICM authors claim that via IC measurement a company can formulate a resource-based strategy and can translate business strategy into action [53, 84]. Thirdly, at the operational level ICM is proposed as a way to weigh alternative plans of action and to affect the behaviour of organizational members (for instance, via compensation) [84]. At this level, IC measurement most clearly links to management as remote control [73]. At this third level also the issue of agency becomes debatable. The first two levels most clearly target decision-makers as vehicles for effecting change. Information provided by ICM allows initiatives in fields such as portfolio management, qualification management and productivity [68]. The information gathered for decision-makers may further result in actions that affect the work setting. As Bassi and Van Buren [17] suggest, the ultimate purpose of ICM is to generate the information needed for continuously improving its value. The influence of ICM is thus twofold. Initially it may influence the action of decision-makers. Subsequently it may have an effect on non-decision-makers. A point of dispute is whether also employees, the alleged knowledge workers, are directly targeted by ICM and may therefore also qualify as direct agents of ICM effects. In a study of human capital measurement, Pfeffer [85, p. 362] argues that ‘comprehensive assessment systems that entail multiple measures of multiple indicators are possibly useful for charting the overall productivity or health of the function, but they are almost useless for influencing or directing behaviour’. Chaharbaghi and Cripps [86, p. 30] suggest that, because IC measurement is based on the disembodied logic of rational management, ‘it will not instigate any useful, meaningful action’. A similar conclusion can be drawn for the internal intended effects as was drawn for the external effects. Knowledge is present in at least
some of the effects IC measurement is expected to have (e.g. drafting a knowledge strategy, putting knowledge on the management map), but not in a sharp and well-described way. In the proposed causal workings of IC measurement, knowledge remains a placeholder concept that is not developed either in a constructive or in a more critical sense.

4.3. Unintended effects of ICM

Little attention is given to unintended effects of ICM efforts. The most closely related warning that IC valuation may be counterproductive can be recognized in what Yates-Mercer and Bawden [24] identify as the paradox implied in knowledge valuation. That paradox stems from the understanding that the value of knowledge resides in fundamentally unpredictable future contexts. That implies that there can be no value attached to knowledge as if it were some static resource waiting to be used. The very act of pinpointing the value of knowledge may even alter the attributes of knowledge, and thus this paradox hints at a causal connection between valuation and knowledge.

4.4. Actual effects of ICM

If ICM authors pay substantial attention to a motivation for ICM efforts, and thus implicitly to the effects that these efforts are supposed to have, their interest in the effects actually produced by ICM, whether intended or not, is much less. As several authors note [14, 84, 86, 87], the effects of ICM are an under-researched subject. While some eclectic empirical studies on the impact of ICM are available [20, 64], even some suggesting in general terms that ICM leads to ‘improved understanding’ [87] and thus to an increase of knowledge, there seems to be no systematic approach. The categories of effects that can be deduced from ICM motivations, which specify the special nature of the ICM interest, do not recur in these studies. The available studies consider effects on such general themes as performance and success. A focus on the effects that IC measurement has on organizational knowledge, as a guiding principle for starting the ICM effort, is fully absent in assessment studies of ICM effects. In the terminology of Figure 1, in the present ICM literature attention for the causal connection started by selecting specific IC indicators stops at (c), the measurement objects and the themes they represent, and does not extend to (a), the organizational knowledge.

5. Discussion: white spots, tensions and cross-fertilization in KM–ICM liaisons

The liaisons between KM and ICM are far from trivial. While knowledge (latu sensu) appears to be the natural connector between these two fields, it becomes clear that such connector – despite its strong rhetorical and practical appeal – is unable to restore their ontological and epistemological differences. If incommensurability between KM and ICM is in evidence – as suggested – the answer cannot simply be to drop the discussion. On the contrary, what is needed is a comprehensive assessment of their content (what is KM and ICM all about) and their processes (how is KM and ICM to be performed), so that all the possible connections, tensions and possibilities between the fields may show their true colours. In this section, we recap the constitution, reflection and causation perspectives addressed earlier to guide this critical assessment.

5.1. Representation of ‘knowledge as social practice’ in ICM debates

The overall image that emerges from the literature review is that ICM discussions build on and develop an eclectic, yet incomplete, understanding of knowledge. ICM methods radiate a clear predominance of an underlying epistemology of possession, in both stock and flow elements of the approaches. Stock aspects (assets, resources), which automatically give away possession thinking, seem to provide the intellectual home for ICM discourses. Flow is usually introduced in connection to stock as the processes where elements of stock become valuable. Flow-related distinctions highlighting the dynamic sides to knowledge creation are also recognizable in such concepts as organizational learning [72] and action knowledge [88]. Without a reference to aspects of flow, doing justice to social-practice aspects of knowledge is inconceivable. However, the focus on flows and dynamic aspects as such is no guarantee for widening the perspective to include aspects of an epistemology of practice. ICM methods treat processes and activities as generic dynamic objects that exist within organizations and that can therefore be considered to be owned by these organizations. They are built on the implicit assumption that the substantive meaning of these processes and activities can be established separate from the subjects and situations in which they develop. Such elaborations, which link to a set of explicated objectives, lead to a functionalist interpretation leaving the social-practice sides of learning and other knowledge-related activities only implicit. It is therefore safe to say that in mainstream ICM approaches the idea of flow stays firmly at the level of generic measurement objects (cf. the distinction between resources and activities). The indicators linked to activities and processes (e.g.
competency indices, motivation indices, network properties) could serve to point out situations where knowledge floursishes, but because of their inevitably generic nature they could just as well mask fundamental differences covered up by the same index values. Even if images of knowledge inspired the selection of indicators, the reverse relationship is not easily established. No mechanisms are offered to link such indicators, which are labelled as ‘flow variables’, to the situatedness that defines social-practice approaches. Because such mechanisms are lacking, none of the standard SC methods mentioned above can escape possession thinking.

Social-practice understandings of knowledge only play a marginal role in these discussions. The various ICM approaches implicitly embrace the image of knowledge as an addition of individual elements such as aspects of human, structural and relational capital and preset and fixed relationships among these elements. The ICM approach, both its discourse and practice, takes on an engineering perspective that involves breaking down problems into parts, facilitating a comprehensible analysis of each part and integrating partial solutions into an overall solution. The overall image of IC as subject to management and measurement has similarities to a metaphorical snowball that grows by rolling it across the knowledge landscape. An engineering approach has problems addressing the kind of dynamics involved in the concepts of knowledge, knowing and learning, as these largely escape experimenting and capturing. Owing to the extent and nature of the interactions between ‘knowledge in categories’, any dissecting approach to organizational knowledge overlooks that it is pervasive and boundless because it is situated, distributed and mediated [8, 28]. The context-specific nature of organizational knowledge [47], which highlights its dynamic and integral character, presents a barrier to developing a consensual approach for managing and measuring intangible resources. Moreover, organizational context and diversity shape value perception. As a result, resources are differently valued by organizations. Likewise, owing to context idiosyncrasies, ICM approaches tend to be unique to the organizational environment in which they operate [16, 21]. This uniqueness hampers consolidation, which is necessary for comparison and recognition.

5.2. Can value be attached to knowledge?

The image of unbalance in discussions of measurement vis-à-vis knowledge is reinforced when we realize that possession and social-practices approaches come in many forms and shapes. Both are container terms that combine many different, partly disputed elaborations. A useful distinction to unravel the container character of the possession–social-practice dichotomy is offered by Schultze and Stabell [23]. These authors combine the distinction between possession and social-practice approaches with the distinction between a consensus and dissensus understanding of knowledge. Possession approaches become neo-functionalistic when they adopt a consensus model ignoring the possible conflicts hiding under prevailing systems of organizational sense-making. They are critical when they embrace possible dissensus perceptions of knowledge by studying knowledge processes and associated management, such as ICM initiatives, as mechanisms to reproduce power within organizations. Most social-practice approaches are constructivist, because they do not discuss possibly disputed processes of reaching consensus within or among competing interpretations (therefore, they implicitly adopt a consensus model). When they treat social life and the knowledge it entails as constituted via disjointed narratives that do not automatically add up to a single reality (that is, they embrace dissensus thinking), they take on the dialogical nature of post-modernism. ICM approaches are predominantly neo-functionalist. In the rare instances where they hesitantly include elements of practice, they tend toward a social-constructivist understanding that does not explicitly embrace possibly fundamental conflicts in organizational sense-making. Themes that are fully immersed in the critical and dialogical discussions of organizational knowledge regarding power, diversity, aspects of inclusion and exclusion, etc. have hardly entered the ICM field. For instance, narratives play a key role in the Danish Guidelines [54], but the idea that dissensus may produce disjointed narratives that do not add up stays out of range.

The more fundamental difficulty underlying problems of knowledge reflection in ICM is the fact that ICM debates, in their focus on value and valuation, pay little attention to questions of how in a meaningful way knowledge can and cannot be said to have value. Treating knowledge as an asset or a resource, which implies a focus on value, inevitably produces conceptual problems that are not systematically treated in ICM discussions [89, 90]. Does it indeed make sense to call knowledge valuable, and if so, is it valuable in ways that allow meaningful quantifiable valuation [24]? Because knowledge is expandable, compressible, substitutable, transportable, diffusible and shareable [24, 80, 91], its real value lies in the future and not in the past, and in learning processes rather than in application. Knowledge is not intrinsically valuable for any other reasons than that knowledge can be a means in itself, but derives its value from specific use in context [24, 91]. Outside that context, how knowledge can or will be applied and therefore its value is fundamentally indeterminate [41, 42]. The conclusion is that the collected ICM debate is not good in sorting sense from nonsense in connecting knowledge to value and valuation.
5.3. The constitution of knowledge via ICM as remote control

It could be argued that the weak relationships the ICM discussions establish with any organizational epistemology hardly harm them because IC measurement does not focus on organizational knowledge as such but on measurement as an indispensable element of management. As Mouritsen [73] argues, IC measurement is primarily about remote control and intervention, not about creating clarity. ‘Does measurement create a correspondence between the representation of the phenomenon and the phenomenon? Probably not, it is more concerned with making the world amenable to intervention! … it allows action to be performed at a distance!’ [73, p. 257]. Chaharbaghi and Cripps [86] endorse this view, when they state that ‘This is because measurement schemes are jumbles of subjective evaluations and opinions presented as objective phenomena that can serve to mask what really matters. Measurement thus transforms data into biased organizational conversations about what is valuable’ [86, p. 30]. Yet this does not get the ICM perspective out of the woods as regards the way it deals with knowledge. In these views, the role of the ICM discourse in constituting organizational knowledge is downplayed, if not ignored, and the effects on organizational knowledge of drafting ICM systems are overlooked. As several authors, also within the ICM ‘movement’ note, relationships with broader measurement discussions in the organization studies are not well developed. Given the fact that almost all measurement aspects of ICM systems refer to social kinds, the aspect of measurement is important in view of the indeterminacy and possible lack of stability of social phenomena. Even if social reality may be considered to be causally independent of knowing subjects, that does not imply that that its meaning and therefore the way it is socially constructed are too [41, 42]. It is not so much flaws in the measurement approaches that troubles ICM, as Pike and Roos [19] argue, but the ignorance of constitution and effectuation implied in measurement. Every metric, regardless of its use, may affect actions and decisions [92]. When organizations measure \( a, b \) and \( c \), but not \( x, y \) and \( z \), then it is \( a, b \) and \( c \) that will get more attention. The promise that ‘what gets measured, gets managed’ is therefore a false one, as it ignores the implied paradox [24, 93]. Organizations may become what they seek to measure and counterproductive decisions and actions may result [92].

5.4. Balancing the causal effects of measuring and not measuring

What the critics of ICM tend to overlook is that not measuring has drawbacks too. Measurement as well as the decision not to measure is never innocent or value-free. Measuring or not could improve aspects of organizational knowledge and deteriorate others. Organizations willing to focus on their knowledge should not decline measurement beforehand but should be on the alert for possible negative effects. Particularly in the knowledge domain, measurement is not a value-free operation. For instance, the use of any motivation index as an IC indicator introduces the risk of crowding-out effects, or reduction of motivation, which may threaten knowledge development. However, the decision not to use any such index, or more generally to abstain from measuring along ICM lines, may also have similar effects on the quality of knowledge processes. If the ICM discourse is to take knowledge as its source of inspiration seriously, it should discuss measurement, the selection and interpretation of measurement objects and variables as elements of the situated practices in which knowledge exists and develops. The current divorce of IC management from the distributed nature of organizational knowledge harms both the development of adequate management of knowledge via IC categories and a meaningful integration of these categories in work floor knowledge via reinterpretation and renegotiation. Outside its context of usage, IC is low in meaning. Essential but neglected elements in the ICM discussions concern how informal communities and more formal teams and workgroups handle ICM-driven initiatives, by either ignoring or by renegotiating their meanings. Insights from these processes could also be used as input to methodologies for drafting ICM systems. Only via practices where knowledge develops with all its associated ambiguities and disputes is it conceivable to connect ICM to a richer understanding of knowledge than prevalent in the neo-functionalist discourses.

6. Conclusion

The analysis presented in this paper shows that connecting KM and ICM is anything but trouble-free. The liaison between KM and ICM appears not as natural as suggested by some and preparations for that liaison have not moved far beyond the rhetoric stage. What the analysis has shown is that knowledge is not a well-represented category in the ICM debates. Making a meaningful concept out of the combination of knowledge and management is no easy task. ‘The more management, the less knowledge to “manage”, and the more “knowledge” matters, the less space there is for management to make a difference’ [8, p. 996]. The oxymoronic character of that combination is reinforced when the approach taken in IC measurement systems is taken as the culmination of KM. Alvesson and Kärreman [8, p. 1015] warn us that any combination of knowledge and management is ‘threatened by falling into pieces if both the two ingredients are taken too seriously’. ICM as allegedly linked to knowledge appears to take the management ingredient very seriously, to
the expense of the knowledge ingredient. It would even be too optimistic to call the images of knowledge in ICM debates ‘inconsistent, vague, broad, two-faced and unreliable’ [8], as in these debates knowledge convincingly plays the role of ‘the great unknown’. The perspective on organizational knowledge does not provide the ultimate benchmark for assessing sense and nonsense of ICM, but because of its interdisciplinary character it may provide conceptually useful beacons to guide a critical assessment of ICM. A critical understanding of ICM from discussions of organizational knowledge may prevent that the umbrella that ICM is becomes a cover-up. Taking knowledge as social-practice seriously leads to the recognition that, if there is one thing that is absent from ICM debates, it is the awareness of dissent and associated ideas of power and ambiguity as core aspects of knowledge. This does not automatically involve a plea ‘against measurement’ or ‘against management’ in the knowledge debates. It suggests that a more balanced view is needed that studies how organizations as distributed knowledge systems [28] make sense of measurement vis-à-vis their knowledge, looks into renegotiation and reinterpretation mechanisms in place, and addresses possible clashes, while not ignoring the downsides to ignoring the possibility of any ‘remote control’ when knowledge is at stake.

Pairing off the ideas of ICM and KM creates the image of a blind person seeking companionship from a lame one. ICM deals with intangible assets [52, 94] and part of their intangibility stems from their invisibility, thus associating the ICM literature with blindness [95]. KM suffers from a different disability given that creative knowledge work only flourishes in freedom, which limits the options of active management [10]. Although this search for companionship may develop to their mutual advantage, tensions are also bound to arise in such a relationship. ICM cannot see the invisible nor – after joining forces with KM – do the impossible. The lame cannot help the blind see and the blind cannot help the lame walk. The challenges involved in linking ICM-related discussions to an understanding of organizations as distributed knowledge systems mostly lie outside the realm of remote control’s lameness. They involve an elaboration of social-practice approaches to knowledge by linking these to benefits and drawbacks of measuring the immeasurable or of not measuring at all.

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