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Accounting for ideas: Bringing a knowledge economy into the picture

Bregje F. van Eekelen

Abstract

Over the past 15–20 years, the margins of industrial classifications, corporate balance sheets and GDP have been altered to capture knowledge as a new category of value. This has resulted in the institutionalization of categories such as an information economy (1997), intangible assets (2001) and, most recently, a knowledge-adjusted GDP (2013) in these calculating technologies. By harnessing knowledge as a manageable and valuable object, these shifts are responding but also contributing to the concept of a knowledge economy. This paper investigates the conditions necessary to anchor these new categories of value. The analysis attends not only to the changing rules and regulations, but also to the rhetorics of visibility/invisibility, materiality/immateriality, and measurability/immeasurability used to make a case for these transformations.

Keywords: knowledge economy; accounting; intangible assets; securitization; GDP; rhetoric.

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> To figure means to count or calculate and also to be in a story, to have a role.
> (Haraway, 1997, p. 11)

> Economists have, of course, always recognized the dominant role that increasingly knowledge plays in economic processes but have, for the most part, found the whole subject of knowledge *too slippery to handle*.
> (Penrose, 1959, cited in Foray, 2004, p. ix, emphasis added)

The concept of a knowledge economy is, if it is to exist, also an object *of* knowledge in the disciplines that seek to administer it, such as economics, accounting and management studies.[1] An example can be found in the census category 'information economy', which emerged as a calculable thing in 1997 in the North American Industry Classification System (USCB, 1997).[2] The materialization of the new census category came about after a reshuffling of the Standard Industrial Classification Model.[3] Reflecting the cultural impact of the suddenly popular notion of a 'new economy' on economic accounting, the United States Census Bureau (USCB) justified the inclusion of the new census category by noting: 'The expressions "information age" and "global information economy" are used with considerable frequency today' (USCB, 1997).[4] Therefore, as of 1997, a number of knowledge-related economic activities, until then scattered throughout this model in, for instance, printing and publishing (under manufacturing), business services and educational services (both under non-manufacturing), were aggregated in a newly-minted category, the information economy (Knott Malone & Elichirigoity, 2003, p. 514). In a sense, the information economy had been 'present' in earlier tallies of economic activity, yet it had not been categorized by the census bureau as an industrial sector that was disentangled from other activities. The new systematic whole conjured the new census category, thereby rendering it subject to knowledge, ownership and management.

In the past two decades, the policy concept of a knowledge economy has increasingly become an object of knowledge and governance. Through changes in the margins of economic models – models that have their own history of emergence – ideas, intellectual property, and other products of knowledge have come to figure as assessable capital. The notion of a knowledge economy has been made legible on different scales via different calculative technologies. The boundaries of corporate accounting standards have, for instance, been altered to include new accounting categories (Financial Accounting Standards [FAS], 141 and 142; International Accounting Standards [IAS], 38), the Organization for Economic Co-operation and Development (OECD) has made efforts to standardize this allegedly new economy as a thing in and of itself that can be compared across countries (Eustace, 2000; OECD, 2005, 2009, 2011), and most recently new guidelines for national accounts have inaugurated 'knowledge-adjusted GDPs' (Bureau of Economic Analysis [BEA], 2013a, 2013b; Van Eekelen, forthcoming).[5]

Financial statements such as corporate balance sheets or national accounts are a statement of fact, but in their incorporation of knowledge, they also call forth a world hitherto not in existence.[6] Financial statements interpret, articulate, and maintain administrative rules. In so doing, they not only reify the rules, but, as Donald MacKenzie (2006) has shown, also performatively constitute the categories to which they refer. For instance, the USCB's revised census classification did not simply describe a pre-existing information sector but constituted it as an industrial sector amenable to inspection. Similarly, in the cases under discussion in this paper, calculating technologies are both responding to popular notions of a knowledge economy and contributing to their continued existence.

In this paper, I focus on two emergent categories that seek to capture the value of knowledge. One matters on the level of individual firms (intangible assets in corporate balance sheets), the other on the level of national economies (knowledge-adjusted GDPs).[7] The quandary with the GDP was whether its boundaries could be flexed so as to include expenses on services and goods that are intangible – such as research and development (R&D), licences, and artistic products – as fixed investment, as capital. Changing the calculation of the GDP could alter the size and economic performance of national economies. The predicament in the case of corporate balance sheets was whether expenses on knowledge-related elements such as trademarks, copyright over written works, and trade secrets could be included as (durable) investments and tallied not as consumptive expenses but as the intangible complements of fixed capital such as land, buildings and equipment.[8] This modification could change a corporation's bottom line. Both transformations have run into difficulties, and allow me to investigate the tension between, on the one hand, the conditions that underpin recent shifts that have sought to anchor knowledge as economic value in these calculative technologies, and on the other the purported immeasurable and invisible nature of that very material.

Hence, in my analysis I look first of all at how existing classifications have been transformed to incorporate knowledge through a close reading of the rules and regulations of economic models, complemented by policy documents and popular accounts.[9] Simply put, I investigate what conditions need to be met for knowledge to be incorporated as a new category of value, and whether these conditions (such as separability, commensurability and appropriability) differ from the accounting requirements for more tangible capital. I then seek to understand why knowledge is so often taken to be invisible and immaterial in those same documents, why knowledge is deemed difficult to measure. To answer this second question, I pay particular attention to the rhetoric of visibility/invisibility, materiality/immateriality, measurability/immeasurability that is used to ensure that intangible goods are both materially and conceptually documented, accounted for, and become part of the real. The theme of capturing knowledge as value is first addressed, though, through an analysis of an advertisement campaign that makes the case for the potential

valorization, organization and regulation of ideas as valuable things, and that also sets the stage for the discussion of their ephemeral nature.

Capital redefined

> [T]he invisible of a visible field is not generally *anything whatever* outside and foreign to the visible defined by that field. The invisible is defined by the visible as *its* invisible, *its* forbidden vision: the invisible is not therefore simply what is outside the visible (to return to the spatial metaphor), the outer darkness of exclusion – but the *inner darkness of exclusion*.
>
> (Althusser & Balibar, 1970, p. 26, emphasis in the original)

Against the background of a rather unappealing financial statement – a pie chart, a bar chart, an area chart, and lots of unintelligible numbers – bold navy blue letters stated, 'IT'S TIME POTENTIAL BECAME A LINE ON A BALANCE SHEET' (Figure 1). This claim was at the centre of a 2007 ad in *The Economist*, advertising the services of CIT Group Inc., a financial institution that lent to mostly mid-level companies.[10] A text box near the bottom of the ad explained that the usual way of appraising a company did not capture its real promise, and by extension, its real value. 'The truth is, "potential" should be a line item on every company's financial statements. It's what we believe. And it's why we look beyond the numbers and focus on the ideas, people and possibilities in every company'.

'Potential' is a *speculative* term encompassing (real) capability *and* (imagined) promise. Why would such an ambiguous term need to be captured as a line item on a balance sheet? A corporation's balance sheet usually lists fixed (plant, equipment, land) and current (financial) assets, balanced against liabilities (loans) and equity. It pertains to a single moment in time, providing boards, banks and investors (like CIT group) with a snapshot of the financial status of a company. This advertisement argued that this snapshot, if it followed the prevailing accounting standards, would not capture the value of a corporation, because there were precious elements – 'potentials' – that did not figure as capital, as assets. According to the ad, the missing but existing potentials were 'ideas, people, and possibilities'. A second ad in the campaign, spanning three pages in *The Wall Street Journal*, opened with a one-page spread of more bar charts and the challenge: 'For those who rely on financial capital alone, here's what you're missing' (Figure 2). The next two-page spread called to mind some 100 types of capital that were being overlooked when accounting solely for financial capital. They included *intellectual capital, scientific capital, connections capital,* savoir-faire *capital, curiosity capital, ah-ha capital, charisma capital*, and so on. The list was long (Figure 3). A third batch of advertisements offered 'proof-of-concept', which 'incorporates customer case studies and *real-life* examples of "Capital Redefined"' (CIT, 2007c, emphasis in original). The ambivalence between what was real and not (yet) real was at

Figure 1 'It's time potential became a line on a balance sheet'
Source: Capital Redefined advertisement, CIT group, 2007.

the very core of CIT's campaign: it twisted what was real and what was conceptual, what was news and what was advertisement, what was fact and what was fiction, and, of course, what was value and capital.

The advertisements were part of a campaign called Capital Redefined that was run by the CIT group. The campaign consisted of three printed ads, radio commercials, and an online television programme (CIT, 2007a). It was also

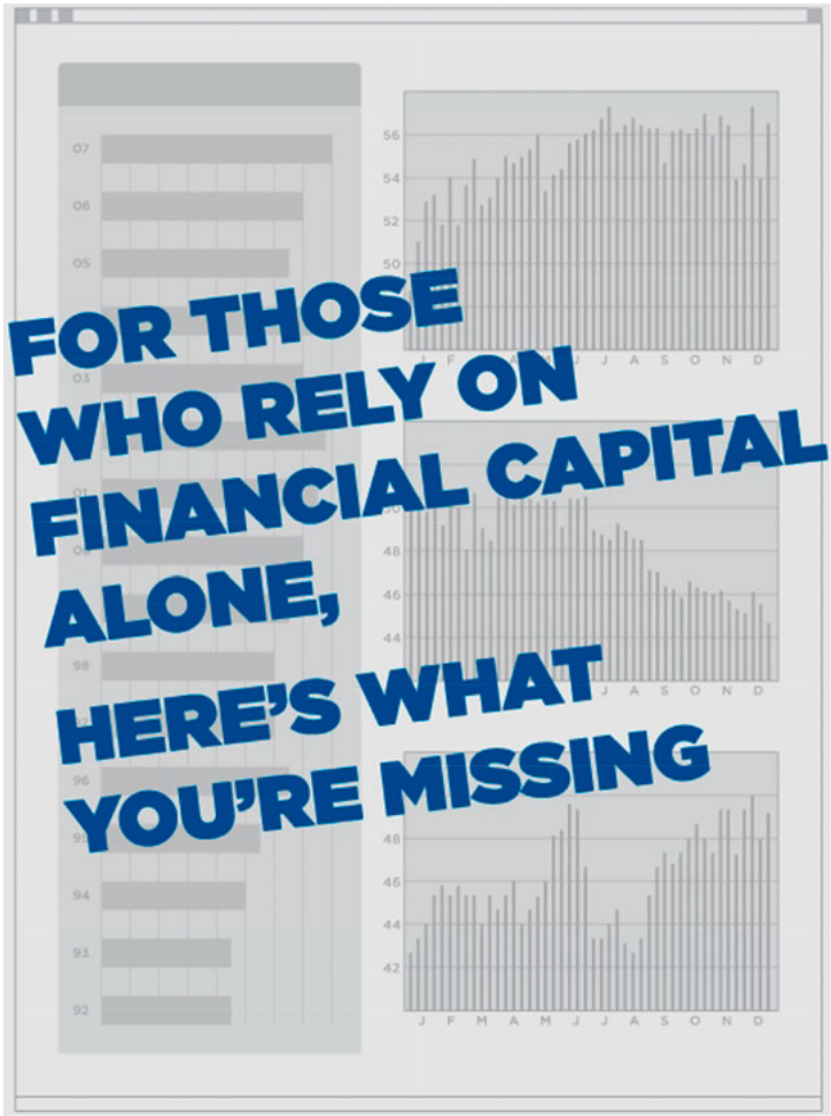

Figure 2 'For those who rely on financial capital alone, here's what you're missing' *Source:* Fragment. (as in figure 3). *Capital Redefined* advertisement, CIT group, 2007.

backed by a 'study' by an online polling institution (CIT, 2007b, n.p.). The headline of this study read as follows:

> New study reveals that corporate executives rate relationship and intellectual capital eight times more important in determining a company's success than a strong balance sheet.

Figure 3 'For those who rely on financial capital alone, here's what you're missing' *Source:* Fragment. *Capital Redefined* advertisement, CIT group, 2007.

It was followed by the line: 'We live in a world of numbers, but numbers have never told the whole story'. That is, this document repeated, now in a factual discourse – backed by a study – the campaign's objective to open up the category of (financial) capital, and to 'look beyond the numbers' (CIT, 2007b, n.p.). The combination of advertisement and research is an awkward one to academic ears. But both participated in the creation of an object, in this case a potentially valuable 'outside' to the numbers produced. This 'outside' alludes to the valorization, organization and regulation of knowledge as valuable thing. And from a certain vantage point it sounds quite interesting to unfasten the definition of capital, to look beyond the numbers, and to try to incorporate an economy if not of appearances, of knowledge, people and ideas. It resonates for instance with the constitutive narrative in the history of social theory that culture and the social are far more than an epiphenomenon of the relations of production. It suggests making visual and capital what social theorists have claimed is already at the heart of capitalism (labour, relationships and people), processes and relationships that can be gleaned if one looks, indeed, beyond the numbers.

While Capital Redefined's point was exactly to call attention to the 'others' of facts and numbers, to open up the reality framed and named by financial statements, it *also* sought to capitalize on framing these others, to recapture them as value. The other capitals had to snap into place (with the assistance of firms like CIT). That is, CIT did not want these other kinds of capital to garner just any kind of attention – such as the creation or articulation of points

of non-value, resistance and non-productivity, or points that would seriously challenge the ways value is recognized, appropriated and maintained. Instead, other capitals were interesting in so far as they could solidify if not amplify the value of a company, by becoming subject to knowledge, ownership and control. This recapturing could be gleaned explicitly from the company's 'value proposition', articulated in its press release:

> Relationship Capital + Intellectual Capital + Financial Capital = Capital Redefined. (CIT, 2007c)

As in the definition of 'goodwill', discussed below, this equation is supposed to do the math that math cannot do.[11] That is, these other capitals – relationship capital and intellectual capital – *cannot* be defined and valued in accounting terms. They cannot be counted or figure on a balance sheet. But the suggestive equation of Capital Redefined, which enlisted them in a framing device, interpellated these new forms *as* capital, as visible categories of value, and in so doing ushered them to the threshold of the real.

The campaign, then, did more with numbers than merely look beyond them. On the one hand, by *opposing* numbers to ideas, people and possibilities – even as it criticized this opposition – CIT reinforced the divide between material, numerable assets and immaterial, immeasurable assets. This divide produced a gap necessary to imagine a space beyond the numbers, a space populated by ideas, people and possibilities, by intangibles that potentially carry value if only we could see them. On the other hand, the campaign *did* suggest to number everything – it did suggest that this ephemeral material be framed and named and governed in what amounts to a financial statement.[12]

The emergence of intangible assets: accounting for invisible value

> Accounting is an ensemble of devices and ideas formed at particular times and in particular locales, rather than an immutable and universal starting point.
>
> (Miller, 1998, p. 177)

While the advertisements for Capital Redefined called for an opening up of the worlds imagined by balance sheets, an actual shift was well underway in accounting standards. Since 15 December 2001, intangible goods can figure on the radar screen of accountants as an asset, as value in and of itself, first in the United States, but elsewhere as well.[13] With knowledge economy pundits arguing that 66–75 per cent of 'the value of publicly traded companies' was 'conceptual', it is almost a surprise it took accountants and economists this long to turn intangible goods into an object of economic knowledge (*The Economist*, 2005; Lev, 2001).[14] As I will discuss below, intangible assets are rather nebulously defined as an 'identifiable nonmonetary asset without physical substance' (IAS 38, §8). Examples are trademarks, service marks, customer

lists, customer relationships, songs, and trade secrets.[15] Ever since this shift in accounting standards took effect, expenditures on advertisement, such as those on the campaign Capital Redefined, are exactly the type of intangible value that can be listed as an asset on a balance sheet.[16]

As Peter Miller and others in critical accounting studies have argued, accounting is a mutable process, a process that needs to be situated in time and space (Miller, 1998; see also Arrington & Francis, 1993; Hopwood, 1992; Hopwood & Miller, 1994; Miller & Napier, 1993; Porter, 1996). In the United States, accounting standards are produced by the private Financial Accounting Standards Board (FASB). Like the North American Industry Classification System, mentioned in the introduction, this non-governmental organization and its rules and regulations are a product of the Great Depression. Theodore Porter has interpreted the rise of the FASB as, on the one hand, a corollary of the emergence of standardization – a 'shift away from elite disinterestedness' – and, on the other hand, as an effect of governmental efforts to restore shaken investor confidence following the Great Depression through new rule-based objectivity and uniformity. In order to prevent 'an imminent bureaucratic intervention' through government regulation, accountants organized *themselves*, producing their own rules and regulations (Porter, 1995, p. 93; Zeff, 1984).[17] Porter also detailed how these then-controversial rules and regulations were received amongst accountants: most of them opposed standardization. They cited the limitations of uniformity (as only one way to restore investor confidence), the complex nature of any one accounting concept, and the continuous need for interpretation – in other words, accountants were cognizant of the fact that none of the categories used were self-evident (Porter, 1995, p. 94).

Accounting, in its mapping of economic activity, has an ambivalent relation to the material it seeks to describe. On the one hand, it is seen to partake in the production of objectivity. But the creation of legible objects amenable to management and control is also – as accountants themselves realized – an *interpretive practice*. The application of rules requires interpretation and at the same time furthers the life of the framework it refers to. In this sense, accounting discourse 'acts on its object' (Callon, 2007, p. 316), and its employment has consequences (see MacKenzie, 2006). Taking accounting to be a malleable practice, I follow Miller's (1998) suggestion to gain an understanding of accounting processes by focusing on the creation and recreation of boundaries in these particular calculative practices, and on the conditions that allow for these changes. As Miller writes, accounting often mutates through 'problematizing'. In the case under discussion here, intangible assets have been problematized as valuable elements that exist but that are not accounted for.[18] The rationale for a new accounting category followed the narrative logic – not unlike the CIT advertisements – that previous calculative practices did not portray 'what was really going on'. That there was more value to be accounted for than meets the eye. This process of

problematizing – and making – of intangible assets can be recounted in four parts.

The category of intangible assets initially came about as a name for excess – in an analogy with goodwill. The latter concept had been developed in the context of mergers and acquisitions. When one company acquired another one, the sum of the net assets bought was often much lower than the price paid for the acquisition:

Cost of acquisition of company > sum of net assets of company

To legitimate and specify the sum of value not accounted for – the excess value – the idea emerged that a buyer bought not only the building and the equipment, but the goodwill of a company as well. The price paid preceded in that sense an understanding and specification of what it was that was being bought. This notion of goodwill – the excess value that cannot be accounted for – paved the way for intangible assets (see also Mouritsen, Larsen, & Bukh, 2001). At this stage, it is important to note two things. First, that this is a boom phenomenon – in recessions the value of the sum of the net assets sometimes *exceeds* the price paid for a company (an example will be discussed below). The second point to keep in mind is the derivative nature of this excess value – goodwill and intangibles are in essence entirely dependent on the valuation of a company, a process that is subject to changes that may be unrelated to the nature and condition of intangibles themselves.

Part two in the making of intangible assets is that they have been developed to provide a palpable specification of the pricey void called 'goodwill'. Intangible assets are rather obliquely defined as assets that have 'no physical being, apart from a writing which evidences its existence' (Gifis, 2010, n.p.).[19] They 'are saleable though not material or physical' (Kuo & Yang, 2012, p. 1868). They include things such as trademarks, service marks, customer lists and trade secrets. In that case of goodwill, an exchange has to take place for this value to materialize, or to at least be calculable and representable in an accounting context. The question that accounting boards have grappled with is whether the materialsemiotic instruments developed for goodwill in particular situations of exchange – mergers and acquisitions – can be used across the board to measure and map intangible assets *in the absence of such a constitutive situation of exchange*. And indeed, and this is at the heart of part two of the making of intangible assets, the rather restricted category of excess value has started to travel to other financial contexts. Intangible assets, which are thus based on a derivative notion of excess valuation of a corporation, acquired a life of their own on balance sheets – independent of a situation of exchange – and, in addition, they have come to figure as potential collateral, as I recount in step four below.

Accounting for intangibles amounts to booking current costs of, for instance, advertising as capital assets – step three. What this means is that the acquisition of intangibles no longer needs to be categorized as a consumptive

expense – a wasting asset in accounting terms – but, instead, can be listed as a *future-oriented* investment. Take for instance intellectual property (IP). Whereas the word property seems to resonate with economic and legal frameworks, until recently IP was not property that was regarded by accountants as a category of assets capable of *generating* forms of value. Consequently, the costs of development or acquisition of IP were categorized as consumption, not investment. With the new accounting standards, expenses on intangibles such as IP, but also the CIT ad campaign I discussed above, can be treated as 'an amortizable investment in long-term capital assets rather than as an ordinary operating expense to be charged against revenue for the period in which it is incurred' (Merriam-Webster Dictionary, 2005).[20] That is, whereas expenses made to create intangibles used to be counted as consumption, they can now be capitalized. If and when this takes place, intangibles move to the realm of buildings, cash, land and equipment and come to belong to the category of non-wasting asset from which future benefits are to be expected. This operation affects the bottom-line – which brings us to a potentially felicitous effect of step three, greater profits. As the Federal Reserve Board (FRB) explicated:

> When intangibles are treated as an intermediate input, the spending on intangibles is subtracted from revenue as an *expense*, reducing measured profits. On the other hand, when intangibles are treated as an *investment*, they are not subtracted from revenue in the period of purchase, *and profits are higher.* (2006, p. 16, emphasis added)

The final stage in the making of intangible assets is that these assets can figure in (for example, patent-backed) securities (Odasso & Ughetto, 2011). Ideas, customer lists and trademarks can be 'securitized'. This means that bonds can be issued based on their expected future revenue. An example of this securitization of intangible material is the way Yale financed its new medical complex. It securitized the patent royalties from an anti-HIV drug, Zerit (Edwards, 2001; Fischer, 2001; *The Economist*, 2006; Odasso & Ughetto, 2011). That is, when intangibles move to the category of non-wasting assets, their projected future revenue can be the basis for the procurement of cash in the present.

If all four parts fall into place – and if asset prices are on the rise – intangible assets are a means to turn the increased valuation of a corporation into collateral for new capital. Robert Brenner, while not specifically mentioning intangible assets, has highlighted how in the absence of actual profits – a sound rate of return on investment – increased valuation came to figure as collateral in the late 1990s and early 2000s:

> By virtue of their rising stock prices ... firms were thus enabled to finance stepped-up capital accumulation in advance of actual profit making, either by

> issuing highly priced shares or borrowing against the huge collateral represented by their increased valuation. (Brenner, 2009, p. 24)

The focus on intangible capital can thus also be read as an articulation of the subtle or not so subtle shift away from what is *produced* by a company, towards extracting capital through the increased valuation of its assets. Intangible assets were, after all, first conjured in the context of mergers and acquisitions. And it is in that context that '[t]he cult of shareholder value and financial engineering could seem to conjure an immediate gain out of any merger or acquisition' (Blackburn, 2006, p. 49; see also Aglietta & Breton, 2001).[21] To be sure, from its inception, the discourse on intangible assets has included socio-cultural categories such as human capital, social relations and ideas, but the reason that these terms emerged was not to carve out a prominent place for workers in the production of wealth. The steps that contributed to the mutation in accounting standards suggest that the presence of this socio-cultural terminology functioned primarily to increase profits and boost share prices – a boost which, in the most far-reaching variant, was tapped as collateral for new loans.

Categorizing value

> What is ideology but, precisely, this work of fixing meaning through establishing, by selection and combination, a chain of equivalences.
>
> (Hall, 1985, p. 93)

Whereas the value of intangible assets – and even their presumed existence – is essentially derivative, which renders their foundation rather shaky, these 'invisible elements' of corporate processes are simultaneously made as concrete and as manageable as possible. The work of measuring and mapping intangible goods is, as I will discuss in this section, a conceptual practice – it is a form of attribution, recognition and figuring out. Publications on intangibles, however, are also rife with reflections on the difficulty of getting an accountant's grip on material that resists accounting legibility (e.g. Aizcorbe, Moylan, & Robbins, 2009; Lev, 2001; Zéghal & Maaloul, 2011). In the next three subsections I will highlight some of this friction between manageability and illegibility.

Imagine CIT wanted to value its campaign Capital Redefined, not as expense but as investment. The 'value' of the campaign is not something that speaks for itself, even in otherwise routine accounting practices. In order to figure as intangible assets – as investment – the expenses on the campaign would need to be split conceptually in two pieces. One piece would be listed as consumption – the expenditure directly related to selling CIT's services. The other piece would be the long-term investment in the brand name, both of CIT and of Capital Redefined. The latter expenditure carries the promise of future revenue, and could, as such, with the new accounting rules, complement CIT's fixed assets, positively affect their bottom line (in good times), and

even figure as collateral for new loans. To achieve existence as an intangible asset, however, a set of fairly strict criteria need to be met. These criteria include separability, measurability, commensurability and appropriability.

The first condition necessary for ideas and intangibles to be recognized as value is *separability*. An intangible asset can only be identified if it is 'capable of being *separated* or divided from the acquired entity and sold, transferred, licensed, rented, or exchanged' (FAS 141, §39, emphasis added). In other words, it needs to attain certain qualities of a 'thing'.[22] And this is also where the trouble starts, since '[a] huge proportion of knowledge is not traded in the framework of monetary transactions; it is accumulated in firms, other organizations, and actor networks without any value being attributed to it' (Foray, 2004, p. 12). As an example of a thing that cannot be parsed into separable intangible value, workers themselves are mentioned in the accounting rules: 'an assembled workforce shall not be recognized as an intangible asset apart from goodwill' (FAS 141, §39). That is, the collectivity of embodied labour can't (yet) be unglued (and securitized).

But separability is only the first condition for recognition. If intangibles are to figure as assets, their value needs to be *measurable*. The measurement of the value of intangibles is based either on the cost of purchasing or producing an asset, or on current market value, which requires an active – liquid – market.[23] In the context of intangibles, the conclusion is often drawn that there is no market. The absence of a market can mean that there is no sustained demand for a particular intangible asset. A more common problem though is a lack of commensurability. One of the conditions of existence of a market is that it requires commensuration in a way that can turn intangibles into identical or similar goods. Moreover, in order to assess value, a *historical record* of exchange of the same or similar things is required. An active market means that there needs to be a 'history or evidence of exchange transactions for the same or similar assets ... otherwise estimating fair value would be dependent on immeasurable variables' (IAS 38, §38). When intangible assets have been developed within a firm, this can result in a lack of 'arms-length market transaction to generate observable and *verifiable* data with which to estimate the quantity produced' (FRB, 2006, p. 10, emphasis in original). And without a historical track record, a company is mandated *not* to recognize intangible assets.

While separability, a liquid market, and commensurability are all conditions for the recognition of value, there is one more requirement. An asset in general is 'a resource that is controlled by the enterprise as a result of past events ... and from which future economic benefits (inflows of cash or other assets) are expected' (IAS 38, §8). The 'past events' can connote purchase or development. But the future benefits require expectations of a beneficial future: '[t]he probability of future economic benefits must be based on reasonable and supportable assumptions about conditions that will exist over the life of the asset' (Deloitte, 2015, n.p.; see IAS 38, §22). For instance, the benefits need to be *attributable* to the intangible in order for the intangible to become

recognized as an asset. It needs to be clear, moreover, that the future revenue will be incurred *by* the company, through the use or sale of the intangible (IAS 38, §7). If others elsewhere could benefit too, the 'the lack of *appropriability* of the returns' means the intangibles cannot be valued as assets (FRB, 2006, p. 10, emphasis in the original). In all, assessing the probability and trajectory of future revenue is a practice *The Economist* (2006) described as 'more art than science'.

If and when all criteria are met, recognition in accounting terms can take place. The passage from expense to asset is, however, not without costs – the cost of governing 'life' in a new regime of value.[24] If a company wants its intangibles listed as assets, they need to be screened for life by experts who value intangibles and goodwill, and test them for impairment.[25] As assets – elements that may yield future revenue – intangibles can have definite or indefinite lives. If they have a definite life, they are expected to function as capital for a set period of time – e.g. patents that expire after some time – and they will be amortized accordingly. Immortal assets, by contrast, never need to be written off. But this immortality, again, comes at a cost. Under the subtitle 'Immortal danger', *CFO Magazine*, another publication promulgating narratives on the economy, discussed the fate of assets with indefinite lives (Reason, 2003, n.p.). The problem, the magazine imparted, was that to bank on this immortality – by retaining their value and thus escaping amortization – an asset would need to be subjected to continuous impairment testing, to unremitting and costly screening for life.[26] To assume life as a recognizable asset, the trajectory of an intangible asset is thus rife with challenges. The biggest obstacle, however, may well be its derivative origin, hidden in plain sight. No matter how hard the stipulations above attempt to hammer out the very concrete nature of an intangible asset, its value is based on the shaky foundation of excess valuation.

The materiality of ideas

> The lack of *visibility* of intangible assets after their acquisition ... complicates efforts to track past vintages.
>
> (Federal Reserve Board, 2006, p. 10, emphasis in the original)

While in the past 15–20 years strong efforts have been made to introduce new categories of value in industrial classifications, corporate balance sheets, and national economies (below), intangible assets and knowledge more generally continue to be qualified as ephemeral, as effective but in essence 'slippery', 'unobservable', and 'unmeasurable' (e.g. Blair & Wallman, 2001; Davison, 2010, p. 166; Foray, 2004, p. 9; Lengnick-Hall & Lengnick-Hall, 2003, p. 3; Low, 2003; Penrose, 1959 in Foray, 2004, p. ix; Wall, Kirk, & Martin, 2003; Zambon & Marzo, 2006).[27] Moreover, this invisible nature is often posited as a striking contrast with tangible goods. In what follows, I will inquire whether

intangible assets are, indeed, particularly undetectable, and whether intangible and tangible goods are, in that regard, dissimilar. The underlying question is whether the process of valuation of tangible and intangible capital is as widely divergent as is often assumed.

Dominique Foray (2004, p. 9–11), in a survey of economic theories about knowledge, has offered a list of problems that obfuscate the legibility of knowledge in the context of economic theory. First, knowledge is heterogeneous, making it incommensurable (in accounting terms, there is no market). Second, it is unobservable, in that its 'incorporation in thoughts and deeds' renders it 'invisible' (making it inseparable). To be sure, there is codified knowledge, but according to Foray this is only a small portion of all knowledge, a claim I will probe below. Third, there is no sound theory about how investment in knowledge leads to 'economic effect'. And in fact, the relationship between input and output is fundamentally indeterminate when it comes to knowledge (rendering future benefits indeterminate). 'Depending on the prevailing spirit of initiative, the situation of competition or the social organization, a new idea can trigger huge change or have no effect' (Foray, 2004, p. 9). Fourth, knowledge is impossible to measure: 'measuring stocks, already difficult in the case of physical capital, becomes an impossible undertaking in the case of knowledge' (Foray, 2004, p. 10). And fifth, there is a problem of 'additivity', or commensuration: 'There is neither a prototype nor an original, so that the notion of an additional unit is meaningless' (Foray, 2004, p. 10).[28] Knowledge, it seems clear, is unmeasurable.

While Foray has a point when he claims that much tacit knowledge 'does not appear in the form of codified instruction' (Foray, 2004, p. 13), much knowledge, at least the knowledge protected by intellectual property rights, exists in quite tangible form. It is codified in, for instance, manuals, computer formulae, books, and charts. Granted, there is an important provision in intellectual property law that ideas themselves cannot be copyrighted – they are meant to be a public good. What *can* be protected under intellectual property law is a (codified) *expression* of an idea. The United States Copyright Office advises, under its FAQ section:

> Copyright does not protect ideas, concepts, systems, or methods of doing something. You may express your ideas in writing or drawings and claim copyright in your description, but be aware that *copyright will not protect the idea itself* as revealed in your written or artistic work. (United States Copyright Office, 2013b, emphasis added)

The idea/expression dichotomy means, first of all, that in order to claim copyright, an idea needs to be embodied in a *tangible* medium (a book, film, draft) – this expression can then be subject to protection under intellectual property law. Another required condition is that the expression needs to be multipliable – that is, it needs to exist in a form appropriate for reproduction. Copyright protection can be called upon as soon as an idea is expressed in

fixed (and reproducible) form. For intellectual property law then, it does perhaps not matter *how* an idea is intellectually anchored (in lists, juxtapositions, histories), but *that* it is documented in a legal sense. The document (and the fact that it is, precisely, *reproducible*), precedes the (singular) idea in establishing property, and has a tangible form.[29]

With such an emphasis on *tangible* traces in IP regulations, it is curious that knowledge is so regularly relegated to intangible, invisible, unmeasurable spheres. Take for instance the FRB (2006, p. 10), which, contributing to the myth of immeasurability of knowledge in accounting contexts proper, wondered 'in what units should knowledge be denominated?' I quote this passage from a discussion paper for the Finance and Economics Discussion Series of the FRB at length because of the myriad fairly commonsensical assumptions that surface, not only about intangibles but about tangibles as well:

> Tangible goods have a physical embodiment that is capable of being observed, and it is therefore possible to observe the ones that have been held over from previous years in the larger stock (they often have serial numbers that identify their vintage). The self-evident durability of a tangible good would immediately qualify it as capital rather than an intermediate good under most reasonable criteria. Intangibles, on the other hand, have no palpable embodiment and, in some sense, lack *visibility*. Thus, it is not feasible to look for a collection of vintages of intangible investments or even a single older vintage as proof that the item in question really is capital. In the case of knowledge capital, for example, it is hard to know which 'bit' of knowledge belongs to which vintage of investment. (FRB, 2006, p. 11, emphasis in the original)

The text's many assumptions exemplify a misplaced concreteness in the characterization of tangible goods that appears frequently in the context of intangibles. To begin with the first sentence – what makes tangible goods goods requires not simply a physical embodiment, as the authors suggest, but a legibility in a juridical context. For tangible goods, conditions need to be met that are not unlike the conditions necessary for the recognition of intangible assets (the active market, separability, and transferability discussed earlier). Tangible goods, contrary to what is implied, are not born with serial numbers attached. Serial numbers are indeed an apt example of the half-visible structure of governmentality that is necessary for goods – tangible or intangible – to be made, managed, and owned. Tangible goods are not 'self-evidently' durable either, as the text suggests – they too require amortization and valuation services that check for the life of goods. Tangible goods may be there for the eye to see, but again, a – partially invisible – maze of rules and regulations within which they can be taken to be goods is a necessary condition for their existence.

In the second half of the quote, the FRB turns to intangibles, which lack all of the assumed self-evidence provided by tangibles. While it may be hard to

know which 'bit' of knowledge is attributable to which vintage of investment, a composite nature is nothing new to goods. To take an example of a tangible – if liquid – good, while wine is often made with grapes from a particular year, the vine is an equally long-term investment, bearing the grapes on a stem that may be years old, and it is hard to tell which bit of the vine belongs to which vintage of wine. Wines, moreover, often stay in barrels and then in bottles for more than a book year. If wine is eventually poured into a bottle, this 'bit' is produced according to a certain system of standardized measures (the size and shape of the bottle being the most obvious one, with regional differences etched into the form). Eventually, the wine can be sold in a market as a certain type of wine if a maze of conditions is met (e.g. the plot of land may or may not be certified for certain regional specialties, added sugar is or is not allowed, a small window of harvesting time is sometimes prescribed if one wants to produce a certain type of wine, and the alcohol percentage is strictly hemmed in). All this is to say that tangibles are not unlike intangibles – many of the mechanisms for administering value are quite similar for tangibles and intangibles (see also Gröjer, 2001, p. 711). While there is a recurring case of misplaced concreteness in the discourse about tangibles (especially when they are compared to intangibles), tangibles are as much as intangibles subject to what could be called a largely invisible grid.[30] And what often remains invisible is exactly the work that turns things into assets, into capital. A look at what Miller has called the 'margins' of accounting – in this case the emergence of a new category of value – calls attention to the social (largely invisible) nature of other, already institutionalized incarnations of value. It is in those marginal cases that the valorization of assets is most easily observed, but this is not to say that all that already exists in a balance sheet is somehow naturally there (Miller, 1998).

Envisioning the invisible

> Because the economy is not found as an empirical object among other worldly things, in order for it to be 'seen' by the human perceptual apparatus it has to undergo a process, crucial for science, of representational mapping.
>
> (Buck-Morss, 1995, p. 440)

A new category of value requires recognition, including through quantification – giving a concept monetary form – and visualization. In the case of intangibles, where the very definition revolves around 'lacking physical substance' (Shim & Siegel, 2010), visibility is even more imperative, if, however, also essentially challenging.[31] Accounting statements, like other graphs, charts, diagrams and tables, are visual tools to represent economic processes, what Susan Buck-Morss in the epitaph above calls 'representational mapping' (see also Beniger & Robyn, 1978; Preston, Wright, & Young, 1996).[32] These mapping strategies are a necessary corollary in the making of

the object of an economy.[33] Diagrams and graphs are a form of 'doubling, but with a difference' (Buck-Morss, 1995, p. 440). How is this visibility accomplished with intangible value, which seems doubly challenging, because it must make visible that which is, at least by definition, invisible – and which should, I suggest, remain invisible, given that it is defined as having 'no substance'?[34]

Figure 4, published in *The Economist* in 2007, provides an example of a figure that was mobilized to envisage a new category of value. This graph conjured a set of emergent valuables – intangible investment as a percentage of US business output between 1970 and 2004 – and, importantly, offered them visibility. The graph is, following Ian Hacking (1983), a 'technique of

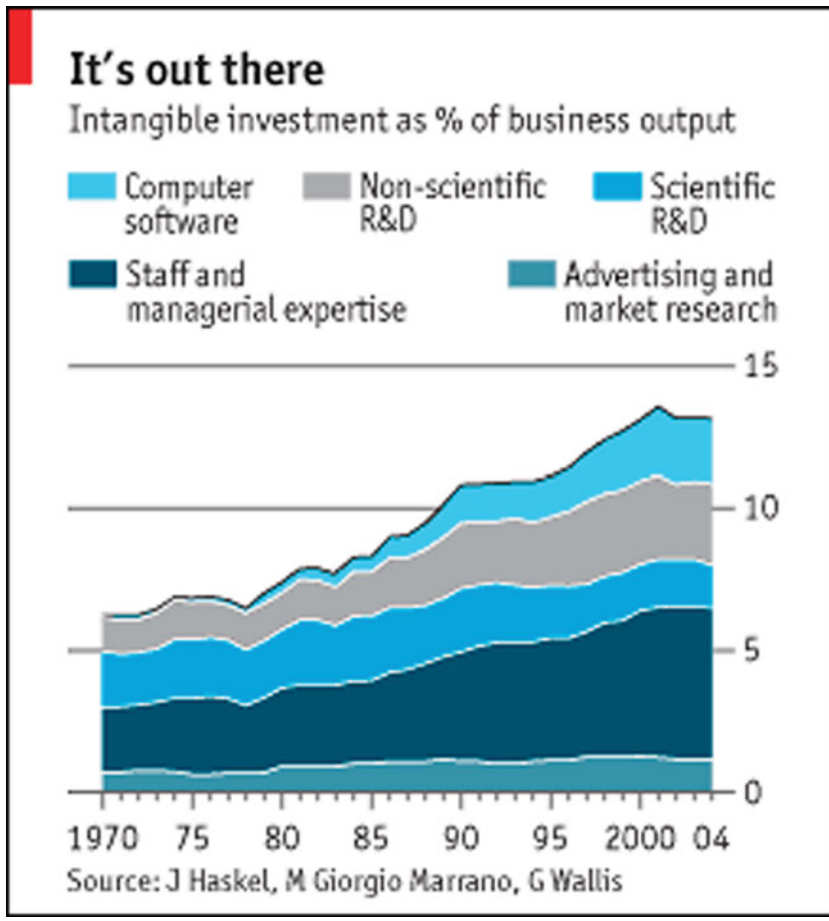

Figure 4 'It's out there'
Source: In 'Intangible measures'. © The Economist Newspaper Limited, London, 2 October 2007.

intervention', in the sense that it is 'a mode of interrupting the discursive domain in the interests of challenging or "altering" its contours and trajectory' (Thompson, 1998, p. 287). The visibility it produced was not a simple representation, but an element in the creation of the narrative of intangible value. In this case it made plausible, given the rising percentage of business output that is intangible, that we should seriously consider this new accounting category. The graph was, however, rather curiously titled, 'It's out there', which was as much a comment on the power of visualization as on *what* it was that was being represented. With its title, it tapped the rhetoric of realism – that which is visible must be real – somewhat reminiscent of the half-yearly news flash that another heretofore unknown deep-sea or deep-forest creature has been captured on camera, and, hence, 'is really real'.

The graph 'It's out there' has a curious counterpart. For the graphs that have been conjured to render intangibles visible – offering them a form of existence – also, when calculating intangibles as a derivative value, have run into the visualization of 'negative value' – a rather complicated form of inexistence. In Figure 5, published a year before Figure 4 – 2006 – we see that the 'implicit value' of intangible assets of US corporations drops below zero. Based on the difference between the market value of equities and the value of tangible assets, the value of intangible assets was positive – and therefore seemingly 'real' – from 1996 to 2002 (Kozlow, 2006). The notion of implicit value partakes in the origin story of intangibles I discussed above: the excess that arises when one compares the market value of equities against the net assets has often been considered the smoking gun, the proof that intangible assets exist even if we cannot see them. Figure 5 recounts how, despite a rapid decline in the market value of equities, between 2000 and 2002 the implicit value of intangibles remained positive. By 2002, however, the market value of

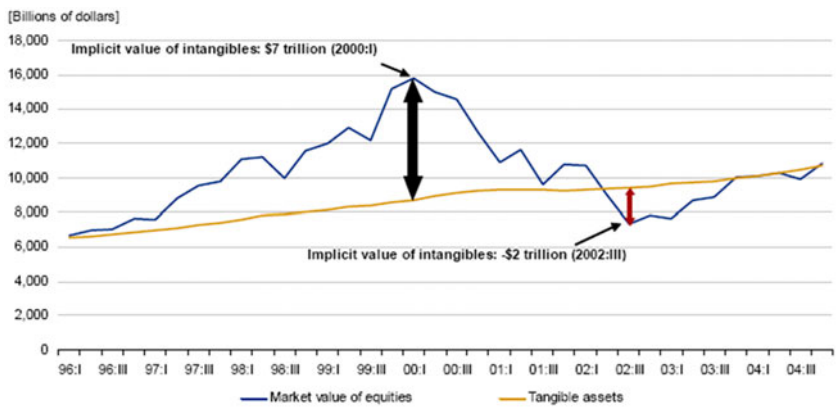

Figure 5 'Implicit value of intangibles'
Source: FRB Flow of Funds (L. 102 and B. 102) release 9 March 2006. Data based on nonfarm nonfinancial corporate business (Kozlow, 2006).

equities dropped below the value of the net assets, and the implicit value of intangibles became *negative*. What we see then is a visual representation of the 'negative' value of assets that have no physical substance. Moreover, and paradoxically, we see a representation of the negative value of invisible assets *that bank for their existence on representations of their positive implicit value* (the smoking gun). What we see, in other words, is nothing – or even, if it were conceivable, less than that.

In conclusion, I hypothesize that the discourse about intangible assets framed as a discourse about *invisible* value is powerful for a few reasons.[35] There is a fundamental tension in the treatment of intangibles as assets. Both 'visibility' and 'invisibility' are needed to maintain the conceptual basis for treating intangibles as assets – and to *not* treat them as 'tangible'. So intangibles are both intangible and invisible, but potentially, with some difficulty, recognizable as accounting value.[36] As I have pointed out above, the valuation of intangibles *is*, like goodwill, *derivative*, and as such, the adjective 'invisible' may be quite apposite. However, the emphasis on the slipperiness, unobservability, unmeasurability, invisibility, weightlessness and lack of substance hardly ever refers to this derivative nature of intangible assets. Similarly, the invisible institutional maze of rules and regulations within which intangible assets are taken to be goods is not what separates them from tangible assets, as the institutional maze applies to tangible assets as well. Rather, the adjectives 'invisible' and 'immeasurable' draw on a critical sensibility *vis-à-vis* standardization. Not everything is or can be standardized and codified – prompting calls to 'look beyond the numbers'. The proposition of a more inclusive balance sheet is particularly interesting in the context of accounting, which is often read as promulgating standardization. By making a case for intangible assets, stakeholders such as the accounting boards and the FRB are making a case for the inclusion of the very materials they have excluded through *their* practices so far. That is, like the CIT advertisements of Capital Redefined, the sensibility of a more inclusive balance sheet produces the gap necessary to imagine the potential existence of other values – values that could, moreover, be governed and managed, even if they are, as I argue throughout this paper, derivative in nature.[37]

Rebranding the gross domestic product

> [B]efore one can seek to manage a domain such as an economy it is first necessary to conceptualize a set of processes and relations as an economy which is amenable to management.
>
> (Rose and Miller, 1992, p. 182)

After corporate accounting standards and industrial classifications, which function on the scale of individual firms and industrial sectors respectively, the national economy has been the latest calculating entity to undergo a makeover:

the administrative technology measuring the US GDP was refashioned in July 2013 to capture the value of the traffic in knowledge, said to comprise a knowledge economy (BEA, 2013a, 2013b; Van Eekelen, forthcoming).[38] This new economy, which supplemented existent metrics, was made of knowledge flows and investments in R&D, things that until July 2013 would not figure as exports and investment respectively in the GDP of a nation (BEA, 2013a, 2013b; FRB, 2006).[39]

Not unlike the Standard Industrial Classification Model and the Financial Accounting Standards Board, the GDP is born of the Great Depression, when 'neither the public nor elected officials understood the workings of the economy that seemed to be perpetuating the crisis, nor did they know quantitatively its scale and scope' (Marcuss & Kane, 2007, p. 32; see also Kendrick, 1970; Stone, 1951).[40] To assess the depth of the depression (would it go down or up?) Simon Kuznets was hired by the National Bureau of Economic Research (NBER) to tally the US economy for the first time (Carson, 1975, pp. 156–157; Vanoli, 2005). What he produced was a *composite* measure of a set of heretofore individuated indicators. It is well-documented that the Bureau participated in producing the concept of a manageable *economy*, as it is currently understood (see Mitchell, 1998). But this model also left a mark on *what* it is that can be counted on to constitute this economy. The institution that is currently responsible for the measurement of the GDP, the Bureau of Economic Analysis (BEA), inherited a model that measures and produces indices of *tangible* economies: flows of tangible goods (net exports), and investments in tangible assets (buildings, equipment), among other things, but not software (until 1999) or expenditures on other knowledge products, such as R&D or entertainment.

However, a complement to this tangible measure of national accounts has been in the making for some time. And by now it may be less of a surprise that economists eager to include traffic in knowledge in the GDP have borrowed an imperceptible concept from astronomy, 'dark matter', to make their case (Hausmann & Sturzenegger, 2005). In astronomy, dark matter is invisible and can only be inferred from its effects on visible matter. Just as intangible assets in accounting originate from derivative calculations (the excess that may arise when one compares the market value of equities against the net assets), in astronomy the hitherto undetectable 'material' was 'seen' through the gravitational force that it produced in the observable universe – that is, through its effects. The authors contended that in economic calculations, dark matter

> … corresponds to assets that we know exist, since they generate revenue but cannot be seen (or, better said, cannot be properly measured). The name is taken from a term used in physics to account for the fact that the world is more stable than you would think if it were held together only by the gravity emanating from visible matter. (Hausmann & Sturzenegger, 2005, p. 4)[41]

Note that dark matter is about as spectral as Capital Redefined – it exists but we cannot see it (nor measure it outright).[42] Moreover, dark matter suggests a derivative logic – we know it exists because of the effects that can be attributed to its surmised existence. In a special issue entitled 'Unmasking the economy', *Businessweek* reported on 13 February 2006 on this phenomenon, calling it a 'shadow economy' (Mandel, 2006). The special issue reported quite extensively on BEA's struggle with numbers when it came to intangible assets, and its inability to measure 'the creation and marketing of knowledge' (Mandel, 2006). According to the magazine, BEA, the institution responsible for measuring the US economy, had 'no way of tracking the billions of dollars companies spend each year on innovation and product design, brand-building, employee training, or any of the other intangible investments required to compete in today's global economy' (Mandel, 2006). In other words, there was a there there. But it was a shadow economy.

BEA was indeed attempting at the time to conceptualize a set of processes and relations as a knowledge economy, a precondition for making a particular economy amenable to inspection and management, as Nikolas Rose and Peter Miller (1992, p. 182) have pointed out. In 2007, the BEA issued a call to Congress for a 2008 budget increase to assess the impact of the knowledge economy on the GDP, starting by factoring in expenses on R&D as investment (rather than consumption). If included in the GPD, R&D could be presented as value and, more importantly, as value-generating. The project comprised a 5-year collaboration between the BEA and the National Science Foundation. The latter had a federal mandate to monitor the world of science, technology and engineering, and had begun to run a pilot project in 2006 for a 'knowledge-adjusted GDP'. The collaboration formed another moment where data on knowledge and data on economic value were made to fuse. With the resolve of the BEA to learn to 'recognize' knowledge flows as value-generating capital, and to label the traffic in knowledge as traffic in goods (which could be included in the GDP), the shift in the measurement of the GDP sought to capture, produce and naturalize a change in the perception of the US economy, as, in part, a knowledge economy. Despite a bumpy ride through the financial crisis, which nearly tossed the concept of a knowledge economy on the heap of worn-out keywords, this pilot project has brought about a concrete shift in the way the GDP is calculated. As of July 2013 expenditures on R&D, on entertainment, and on 'literary, and artistic originals' were given a visible spot in the US GDP. Echoing the transformations of corporate balance sheets discussed above, the revision of the national income calculates these expenditures on intangibles as fixed investment, as capital (BEA, 2013a, 2013b; see also Van Eekelen, forthcoming). The European Union followed suit in September 2014 (Eurostat, 2014). One of the welcome effects of this addition is that post-industrial economies' GDPs have grown overnight, prompting headlines such as in *The Financial Times*: 'Data shift to lift US economy 3%' (Harding, 2013; Van Eekelen, forthcoming).

A one-page document provides a last twist in the construction of the concept of a knowledge economy. Figure 6 comprises a 2007 fact sheet issued by BEA on the occasion of its request for Congressional funding for its collaboration with the National Science Foundation to develop the knowledge-adjusted GDP. In addition to the presentation of a few preliminary data and other matters of fact, BEA, somewhat recursively, cited *Businessweek*'s special feature on the 'shadow economy' as its main source:

> A widely read *Businessweek* cover story (13 February 2006) highlighted the need to incorporate knowledge-based economic activities into the Nation's most important measure of economic activity, the gross domestic product. (BEA, 2007)

Brands *are* intangibles that are candidates for economic calculations which seek to harness knowledge economies. In that line of thinking, it should perhaps not be a surprise that the symbol of the magazine that tells stories about economies, *Bussinessweek*'s logo, also figured prominently on BEA's fact sheet. But while an example of intangible value (a point that is not the subject of BEA's reflections in its fact sheet), the recursive information and the stray symbol seemed cast primarily to articulate one more time that it is really real, this conceptual economy. If *Businessweek* reports on it, it exists, and BEA and the US Congress should adjust to the pulse of this new world.

Conclusion

In this paper, I traced the institutionalization of economic categories related to the concept of a knowledge economy. The new categories were a response to, on the one hand, the rise of the valuation of corporations (in the case of intangible assets), and on the other to a search for a different measure for post-industrial economies – one that could counterbalance the decline and evacuation of material production (knowledge-adjusted GDP). For each new category, popular notions of a new economy, knowledge economy, or information age were drawn upon to legitimate their codification. The new calculations of economic value drew furthermore on the notion of 'looking beyond the numbers' of industrial classifications, national products, and corporate balance sheets. This 'look beyond' sought to open up existing calculative technologies to catch the drift of invisible economies, so as to see knowledge emerge on the radar screen of accountants, economists, and census bureaus as value in and of itself. Shaken by the recent financial crisis, however, the concept of a knowledge economy may seem poised to become an obsolete element in the history of a very recent present, its self-evidence fast becoming part of a vanishing world (and certainly less visible in derivative calculations). I will use the remainder of this paper to argue that this recent present still matters. First, because a knowledge economy is now codified in economic categories, and second because the emergence of these categories is an

BEA
BUREAU OF ECONOMIC ANALYSIS
U.S. DEPARTMENT OF COMMERCE

U.S. Department of Commerce
Bureau of Economic Analysis

FY 2008 Budget Request for the Bureau of Economic Analysis

The FY 2008 budget request for the Bureau of Economic Analysis (BEA) totals $81.4 million, including a $2.8 million increase to maintain current services and a $2.1 million increase for an initiative to incorporate R&D into the GDP accounts. BEA is part of the "Economic and Statistical Analysis" budget line item within the Department of Commerce.

	FY2005 Actual[1]	FY2006 Actual[1]	FY2007 Estimate[1]	FY2008 Request[1]
Bureau of Economic Analysis (BEA)	$73.6	$75.3	$75.7[2]	$81.4

[1]In millions of dollars
[2]Based on House Joint Funding Resolution of January 29, 2007 and is subject to change based on further Congressional action.

FY 2008 Budget Initiative: Measuring the Impact of R&D on the Economy

Summary: BEA proposes to measure the impact of research and development (R&D) activity in the National Income and Product Accounts (NIPAs) and the GDP Accounts. The request totals $2.1 million.

A widely read *BusinessWeek* cover story (Feb. 13, 2006) highlighted the need to incorporate knowledge-based economic activities into the Nation's most important measure of economic activity, the gross domestic product (GDP). Many believe that these knowledge-based economic activities, or investments in "intangibles," are responsible for as much as 40 percent of recent U.S. economic growth. Understanding the effect of intangibles in the economy is critical to good business decisions and policymaking.

BusinessWeek

Why The Economy Is A Lot Stronger Than You Think.
by Michael Mandel
(February 13, 2006)

"The statistical wizards at the Bureau of Economic Analysis in Washington can whip up a spreadsheet showing how much the railroads spend on furniture.

But they have no way of tracking the billions of dollars companies spend each year on innovations and product design, brand-building, employee training, or any of the other intangible investments required to compete in today's global economy. That means that the resources put into creating such world-beating innovations as the anticancer drug Avastin, inhaled insulin, Starbucks, exchange-traded funds, and yes, even the iPod, don't show up in the official numbers."

On September 28, 2006, BEA and the National Science Foundation (NSF) released a preliminary R&D satellite account, which provided prototype estimates of the effects of treating R&D as an investment in GDP rather than as an expense. These findings are the first glimpse of the effect that R&D have on our economy.

This initiative calls for BEA to extend the preliminary R&D satellite account, funded by NSF through 2007, with annual updates and extensions between 2008 and 2012, with full incorporation into the NIPAs planned for 2013.

1441 L Street NW ■ Washington, DC 20230 ■ p. 202.606.9900 ■ www.bea.gov

Figure 6 'FY 2008 budget request for the bureau of economic analysis'
Source: BEA (2007).

articulation of structural changes in the organization of economic life that have taken place over some time – and we still urgently need to grasp and process their consequences.

The recent shifts in calculating technologies that tally industrial classifications, national products, and corporate balance sheets ensure that, *en vogue* or not, knowledge economies are here to stay – as objects of knowledge, ownership and management. These modified models are, moreover, constitutive – or performative – technologies that partake in the consolidation of a knowledge economy. The new economic categories call forth a world not hitherto in existence, in the sense that the represented world was not ordered in a way that specifically delineated, included, and highlighted elements of a knowledge economy. Categories of industrial sectors have been reshuffled, national accounts have been padded, and corporate balance sheets have tried to rationalize the excess valuation of a corporation by giving it a more concrete, albeit intangible face. The assertion that the economy is predominantly conceptual, a claim that was made regularly to call attention to new forms of (invisible) value, also reflects back on itself.[43] The shake-up in the margins of the models highlights first of all the institutional and conceptual nature of *all* value. Economic value needs to be governed, criteria such as separability, measurability, commensurability and appropriability need to be met, and this largely invisible set of conditions comes to the fore with the introduction of new categories. Many of the mechanisms for administering value, however, are quite similar for both tangible and intangible value. In order to exist, both intangible *and* tangible value require knowledge about themselves. It is the conceptual gaze of the ad, of the accountant administering a balance sheet, and of the economist measuring national economies that is changing how we think of the economy, as – in part – a knowledge economy.

While the recent present lingers through the codification of knowledge economies, it also matters in another, if often obscured, way. In this paper, I have described how the presumed unmeasurable/invisible nature of knowledge economies is a precondition for the belief in its likely existence – we can't see it except through its presumed effects. The focus on hammering out the concrete nature of things that are by their very nature invisible, and the insertion of these things into valuation regimes, provides an air of tangibility and legitimate existence. The possible ethereality of the concept of a knowledge economy – as well as its component parts, such as intangible assets – is captured and coiled when they are turned into matters of fact through technoscientific accounting practices. However, the air of concreteness, which makes visible and plausible that which is invisible, also, importantly, evades a number of critical discussions. It deflects from the socio-political context within which this shift in calculative practices has become attractive. The very search for concreteness renders invisible the demise of industrial production, the evacuation of production to low-wage sites, worries about being outcompeted by others, the rise of the importance of the market value of equities *vis-à-vis* production, and the need to conjure loans out of rather thin air, to name but a few

constitutive factors that are too rarely included in studies of the valorization of knowledge (see Van Eekelen, forthcoming). Hence, the fixation on the concrete nature of intangible assets misses the point that they can be used to harness a rise in the valuation of a corporation as collateral for new loans, and that a knowledge-adjusted GDP can reinforce otherwise waning national products. And in the fog of the concreteness of knowledge and the management of its life, the derivative logic of the purported value of intangibles – a derivative nature that cannot be undone by these traces of concreteness – and the search for more and more things that can be securitized, is handily forgotten. We are left with a paradox that, with intangibles, we are dealing with derivative value that nevertheless is treated as concrete, tangible value, as value in and of itself, whose projected future revenue can be the basis for procurement of cash in the present. A discussion of that paradox means bracketing the assumed relationship between knowledge economies and, for instance, education, thinking, or creative processes, and shifting our gaze to the restructuring of economic processes in which the importance of production is replaced by the valuation of a corporation.[44] This new economy brings about a world of new economic categories that need to be monitored and managed. But it also creates, potentially, a more unstable world, as this management does not (and cannot) manage the derivative nature of the value of intangible things.

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Notes

1 The socio-economic category of a knowledge economy usually connotes a purported shift from an economy 'based on natural resources and physical inputs' to an economy

'based on intellectual assets' (Powell & Snellman, 2004, p. 215; see also Van Eekelen, forthcoming). It is, however, an amorphous object, produced by a motley mix of business analysts, artists, federal bank chiefs, 'creatives', accountants, philosophers populating the radical left, policy makers, and social scientists (e.g. Drucker, 1968; Florida, 2004; Moulier Boutang, 2011; Van Eekelen, forthcoming).

2 The North American Industry Classification System spans the United States, Mexico and Canada. Sector 51 is called Information (US), Información en Medios Masivos (Mexico) and Information and Cultural Industries (Canada) respectively.

3 This classificatory model for assembling and organizing data about economic activity within nation-states had come into its own in 1937, in the aftermath of the Great Depression (Guibert, Laganier, & Volle, 1971; Pearce, 1957).

4 A useful and diverse assessment of these terms has been provided in a 2004 special issue of *Economy and Society* [33(4)]. Rather than weighing its analytical usefulness, this paper tracks how the concept of a knowledge economy has become an object of management, knowledge or ownership in particular calculative regimes.

5 These new categories have subsequently been given a life in documents, conferences, and editorials organized by think tanks such as Michigan Future Inc. (Michigan, United States), European Knowledge Economy Platform (Europe), and Kennisland (the Netherlands).

6 In the sense that it was not ordered in a way that specifically delineated, included, and highlighted elements of a knowledge economy.

7 The USCB's category of an information economy is pitched at the level of industrial sectors.

8 I will discuss the ethereal definitions of intangible assets later in the paper.

9 What Nigel Thrift (2005) has called the 'cultural circuits of capitalism'.

10 It appeared in the 31 March 2007 issue, a few months before the financial crisis unfolded. CIT went bankrupt in October 2009.

11 Goodwill is the part of a company's value that is not the material value (the net assets). It is defined as the difference between the price paid for a company minus the book value of equity. The value that cannot be accounted for is labelled goodwill.

12 Additionally, through this double movement of unpacking the economy, while repackaging it at the same time, they also inconspicuously sought to create a desire for their own financial services.

13 For an overview, see the Statement of Financial Accounting Standards No. 141 and No. 142 of the FASB, which was altered in 2001. The International Accounting Standards Board (IASB) changed its intangible assets section (IAS 38) in March 2004. While many nations have their own version of an accounting board, many are collaborating in the IASB to 'streamline' and 'harmonize' their standards for intangible assets, creating a smooth space of commensurable calculation. Australia, South Africa and Europe figure prominently among them.

14 They were by no means alone. Rhetoricians Deirdre McCloskey and Arjo Klamer (1995) offered a comparable although somewhat more modest impression, namely that by 1995, 25 per cent of the GDP was produced through 'persuasion'. Peter Drucker (1968, p. 263) asserted almost 30 years earlier, in 1968, that in 1955, 25 per cent of the GDP was comprised of knowledge industries. In 1965 it was a third of the GDP, and in the late 1970s he estimated that half of all value produced would be attributable to a 'knowledge sector'. By then, 'Every other dollar earned and spent in the U.S. economy will be earned by producing and distributing ideas and information, and will be spent on procuring ideas and information'. The argument is thus a regularly recurring one,

and is based on a variety of models. Drucker translated the census categories of 'professional, managerial, and technical people' to tabulate the new category. Walter Powell and Kaisa Snellman (2004, p. 201) identify a greater 'share of the gross domestic product that is attributable to "intangible" capital', but offer few specifics. Whatever the precise number, all these studies, ranging from accounting to rhetoric to business management, argue the percentage is significant.

15 A comprehensive list of intangible assets that could be recognized can be found in FAS 141 (pp. 28–32).

16 Ironically, the campaign Capital Redefined SM itself comprised a concrete example of the very intangible material CIT has sought to bring into the limelight as capital. In the finest, hardly readable print of the ad, we learn that 'Capital Redefined' was a *service mark* of the CIT Group Inc. Whereas a trademark identifies and distinguishes a particular good, a service mark identifies and protects the concept of a particular service. Service marks are any word, name, symbol, device, or any combination, used, or intended to be used, in commerce, to identify and distinguish the services of one provider from services provided by others, and to indicate the source of the services (United States Patents and Trademarks Office [USPTO], 2013a, n.p.). Since services may not exist in a stable tangible form (such as a soda can in the case of a good), advertisements are actually the place where service marks not only identify a particular service, but also where the mark itself, the sign of distinction, enters the world of the real. That is, when registering a trade or service mark, a specimen needs to be deposited, a 'real-world example of how the mark is actually used on the goods or in the offer of services' (USPTO, 2013b, n.p.). In the case of goods, actual use of a trademark can be proven by '[l]abels, tags, or containers' (USPTO, 2013b, n.p.). Since services are not necessarily offered in an unchanging tangible form, 'advertising such as magazine advertisements or brochures' pass as *real-world* examples of the use of the mark' (USPTO, 2013b, n.p., emphasis added). An advertisement, the place that is supposed to conjure an idea of reality, consequently also functions as tangible evidence 'that a mark is in actual use in commerce' (USPTO, 2013b, n.p.). It is a place or passage point where intangible goods such as service- and trademarks are materially documented, accounted for, and become part of the real.

17 Originally, the accountants organized themselves in the American Institute of Accountants. The FASB did not emerge until 1972.

18 Intangibles are actually also at the centre of much 'Corporate Social Responsibility' (CSR) advocacy – run by NGOs such as Amnesty International, as well as special units of pension funds or large corporations. These advocates for responsible investment try to cajole corporations to run their business more ethically. If not, they argue, the intangibles – reputation, brand value – will take a hit, meaning share prices will drop. CSR advocates, moreover, are very keen to use the rhetoric of calculative realism – reminiscent of mainstream accountants and economists discussed here – to make the negative cost of socially irresponsible activities 'visible'.

19 The quality of lacking substance seems to perpetuate an idea-thing dichotomy, where the idea is immaterial and things are by definition material.

20 At the same time, through this and other technologies, intangibles are conceptually removed from the minds in which they take shape. The accountant's frame of ideas-as-assets makes ideas appear disentangled from people.

21 For a historical view on the rise of shareholder value, see Lazonick and O' Sullivan (2000).

22 Identification can also happen through a legal grid, as when identification 'arises from contractual or other legal rights (regardless of whether those rights are transferable or separable from the entity or from other rights and obligations)' (FAS 141, §39).
23 The problem of valuing intangibles according to their market value, what is called mark-to-market, is that this process is pro-cyclical (see Blackburn, 2008, p. 102). If times are good, the market price for intangibles rises. Consequently, the value on the balance sheet increases, this value can be used as collateral for new loans, etc.
24 It is quite striking how 'time' matters and is mobilized in accounting for value. First, there is the question of establishing 'past cost' and 'future revenue'. The latter can be tapped for 'current credit'. Then there is the question of a currently active market, and the need for a historical track record of the valorization of like goods. Finally, there is the question of amortization with its conceptualization of finite/indefinite lives.
25 These services form new divisions of existing valuation businesses, such as Appraisal Economics Inc., or they have come into existence with the change of the FASB standards, such as the company Intangible Business.
26 Blackburn identifies the cost of value as one of the major drains in finance capitalism (Blackburn, 2006, p. 41).
27 One of the first economists to attempt to make knowledge readable as an object that could be subjected to economic calculations was Fritz Machlup (1962).
28 Economists therefore often resort to counting patents and citations (Foray, 2004, p. 11).
29 Whereas the idea/expression dichotomy makes an argument for the materiality of the copyrighted idea, the United States Copyright Office lists four types of ideational products that are (generally) excluded from copyright (2013a). The first concerns 'works that have not been fixed in a tangible form of expression'. The second is an assortment of products, all belonging to the public domain: 'Titles, names, short phrases, and slogans; familiar symbols or designs; mere variations of typographic ornamentation, lettering, or colouring; mere listings of ingredients or contents'. The third category of things excluded from copyright, important for the line of inquiry in this paper, consists of 'ideas, procedures, methods, systems, processes, concepts, principles, discoveries, or devices, as distinguished from a description, explanation, or illustration'. The last category concerns '[w]orks consisting entirely of information that is common property and containing no original authorship'. This includes calendars and lists 'taken from public documents or other common source'. The first and third groups reflect and reproduce the idea/expression dichotomy. The first category reiterates that ideas need to be expressed in a fixed and tangible form in order to be protected, and the third category suggests that these expressions could take the form of an idea's 'description, explanation, or illustration'. The second and fourth categories draw a line around common property. That which is common knowledge cannot be subject to intellectual property arrangements.
30 Tangibles need to be separable too, they require an active market, etc.
31 See Fox Keller and Grontkowski (1983) for an excellent analysis of the long history of the imbrications of visibility and knowledge.
32 The visual aspects in the construction of our understanding of the economy have also been explored by Link (2004), Thompson (1998) and Tufte (2001).
33 See also Tribe (1978) for a history of the object of an economy.
34 The tension between making the economy visible by, for instance, charting it, while having as one of its main mechanisms an invisible thing – the hand – is of course at the heart of much economic theory. '[T]his unseen hand opens up a blind spot in the social field, yet holds the whole together. What is the social body to which it belongs? First and

foremost, it is a body composed of things, a web of commodities circulating in an exchange that connects people who do not see or know each other' (Buck-Morss, 1995, p. 450).

35 The claim that knowledge is a good that is somehow beyond measure is made not only by business analysts, macroeconomists and accountants. It is also a central claim in the discourse on 'immaterial labour' on the left. Hardt and Negri claimed (1994), for instance, that labour productivity had become immeasurable, because of its immaterial qualities (for critiques, see Henninger, 2007, p. 175; Toms, 2008). What interests me is the recurrent claim that (the production of) knowledge is somehow beyond numbers, that it is priceless, unmeasurable and invisible (see also Andriessen & Tissen, 2000; Blair & Wallman, 2001).

36 A case in point is trade secrets. While these particular intangibles are potentially tangible – e.g. customer lists materialize as letters on paper or dots on a screen, an idea can be entangled in material products and processes – they are only valuable if intangible *and* a secret. The FRB (2006, p. 12) argues as much, offering the Coca-Cola formula as an example: 'many intangibles are specific to a firm and valuable, at least in part, because the firm is able to exclude competitors from gaining access to key information and technology'. In those cases, their value is held exactly in making them invisible and intangible: they bank on a hovering between creating a belief that 'it' is really there, and that 'it' cannot ever see the light of day.

37 In making a case that value can be located in other realms, the notion of invisible value also resonates with narratives that are critical of capital and capitalism, whereas intangible assets are, of course, at the heart of capitalism.

38 Documentation on the comprehensive review can be found at www.bea.gov/gdp-revisions (December 2013).

39 The GDP combines private consumption, public sector spending, investments and net exports. 'Consumption' by businesses is not measured, because it is presumed that besides investment, whatever enters the business will morph eventually into a product for sale (e.g. the salad bought by a restaurant will eventually be sold to a private customer, and enter the GDP as private consumption). Intangibles bought by a business are likewise considered a consumptive expense by a company.

40 It is striking how many of the tools used to create economic objects have been forged in the aftermath of the Great Depression. Many of the tools to assess national economies, industrial output and business statistics were developed and standardized in that period. Granted, the current crisis has been co-created through an undoing in the past 40 years of some of the very provisions that were created in the Great Depression, but it is still striking how much of the basic vocabularies, categories, and orderings that are considered commonsensical originate in this period. Our current understandings of what counts as an economy, as productive activity, and as value are mediated through this prism.

41 While these economists take the *stability* of the economy to be the foundation for the existence of intangibles, I have hypothesized elsewhere that it was actually economic instability, and more particularly, a crisis in value production, that lay at the heart of this reconfiguration of value (Van Eekelen, forthcoming).

42 It is intriguing, although beyond the scope of this paper, to track the rather opaque terms that have arisen in the context of finance capitalism, both in its naturalization and in its critiques. To name three: 'invisible balance sheet' (Neftci, 2002); 'shadow banking system' (Tett & Davies, 2007) and 'grey capital' defined as 'great clouds of institutionalized savings, including private pension money, entrusted to financial industry insiders' (Blackburn, 2008, p. 74).

43 'Conceptual economy' was a term that the Fed's former chairman Alan Greenspan frequently used to describe the US economy, which was less and less an economy of

material production and more and more one revolving around ideas. He argued that the GDP was 'conceptualizing', meaning that 'the fraction of the total output of our economy that is essentially conceptual rather than physical has been rising' (Greenspan, 2003, n.p.; see Van Eekelen, forthcoming). An archive of his speeches can be found at http://fraser.stlouisfed.org/publication/?pid=452 (December 2013).

44 For an extended discussion, see Van Eekelen (forthcoming).

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