Essay on the French contribution on material reality and essentiality in the quest for an informational completeness, tested on IP evaluation methods.

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Abstract

Accounting standard setters have opened a debate on measurement concepts with the will to fairly assess the value of assets, and with a special attention given to intangibles assets which scope is yet to define. In response, stakeholders have expressed diverging stances regarding their preference for a measure, whether those originate in the field, be normative or conceptual. This article aims at deepening the understanding of evaluation methods by calling back a long going philosophical debate, known as the universals problem. A retrospective to Ancient Greeks and Middle Ages restates the problem of universals, as then seized by early French thinkers and allows an apprehension of Bergson’s contribution in his redefinition of problematization. Following Bergson’s and Deleuze’s guidelines, we next apply their methods to the IP/patent evaluation methods. The main contribution of this article lies in the provision of a novel taxonomy of evaluation contexts and a typology of evaluation methods suggesting that the previous ways the measurement issue had been addressed has been a “false problem”. Our representation, adapted from the Porphyry tree, is to be interpreted as a mapping following Deleuze’s proposal.

Key words: measurement, evaluation methods, universals, Bergson, Deleuze, Porphyry
Introduction
The lack of consensus in the abundant accounting literature relative to the topic of measurement and fair value (Biondi et al, 2012; Barth, 2014; Casta and Colasse, 2001) characterizes an inexhaustible issue, if not irreconcilable. Through the present research, we seek for new possible angles of apprehension by attempting a capture of the nature of measurement in accounting and evaluation methods, i.e. their trends or constitutive processes. This research postulates that the existing debate may refer to a previous one rooted in the Ancient Greeks and particularly sharp between the 12th and 14th century, known as “querelle des universaux” translated as the “problem of universals”, in which French thinkers, often Duns Scotus' followers, have been highly active. We share with Charles de Rémusat (1845, p. VIII & IX) his fascinating *mise en abyme*: “The scholastic school nowadays appears as old-fashioned, able to surprise but unable to persuade. However for those able to go beyond appearances, [...] it addresses all issues of all centuries, and often, the ideas of our time. Indeed, form of sciences can vary but the substance is invariable, just like the human mind... Indestructible and inalterable, those ideas remain in the human mind, as symbols of an eternal truth (our translation)”. In our opinion, the content of financial reporting information addresses similar issues such as the general vs. the singular as much as it confronts the ideas of essence and reality, and renews the still vivid philosophical debate. Arguably, a current illustration lies in the split in fair value measurement as suggested by IASB & FASB illustrates a same duality: where the universal can be associate to a level 1 measurement, with market level capturing some generality implying some transcendence affecting assets, and the singular can be interpreted as a level 3 measurement, where entity based models embody the particularity. We see here the continuum of the question of individuation as a transformation from a general form to a
peculiar one, that is unique and irreducible to its components, while the materiality and the quest for essence of objects may be avoided issues able to shed new light on this debate.

It may be possible to learn from the Middle Ages difficulty to constructively close the debate, when its slow exhaustion allowed observers to mock its vacuity (Weinberg, 2014). Possibly, the failure can be explained by a misstatement in the assumptions (De Rémusat, 1845) or an excessive polarization in the attempt to solve the individuation enigma (Zerelli, 2001). Lessons from the past mistakes allow the revival of the distinction, through a double recognition of the political failure of the “old” but “pseudo” universal and the validity of the structuralism as a critical tool, allowing Zerelli (2001) to claim for the definition of a “new universal”. In her opinion, authors such as the postmarxist Laclau show an ability to bypass the rooted binarism by critically articulating the two ends rather than choosing to stand on one side, indeed the subtlety in the recent debate lies in the acceptance that singular and universal are/may be interlinked. In more recent years, scholars have surveyed the prolixity of the ideas back then disputed to mobilize them in contemporary disputes. One example is the controversy between Guyau and Durkheim about the nature of religion that is analysed by Behrent (2008) in the light of the nominalist opposition (Guyau) to the realist (Durkheim), the same opposition on which the problem of universals originated. The present exploratory research aims at borrowing similar stances with a yet humble ambition to shed light on today’s accounting debate.

Our main contribution lies in the provision of an undoubtedly perfectible mapping of concepts and evaluation methods can find some organization, some structure, where spatialization is made possible by borrowing the scholastics logic and applying it to Porphyry trees. Because the exercise may be too wide in the frame of a single article, an exhaustive collection of evaluation methods was hardly thinkable; therefore we chose to focus on
Intellectual Property (IP), not without justifying our IP-focused case study. The present work can be considered as a critical work in its intention to shed light on underlying structures of existing common tools. In that sense it may be useful to any stakeholders concerned by the use of evaluation methods, whether he/she may be a standard setter, a shareholder, a preparer, an investor, a fund provider, a regulator, a lawyer… Like any research, this unfinished work meets some limits. The main one grounds on the lack of empiricism, indeed this research departs from the field by listing the evaluation methods used by practitioners, as described in the existing literature, assuming that their adoption proves their usefulness to economic agents.

The paper is constructed as follows. In a first part, a recall of some French people’s early works on the reality of objects and their (im)materiality suggests foundations for the debate regarding valuation methods. In that framework, the definition of measurements and the one of values are discussed in a second part, and positioned on a first Porphyry tree. The next section focuses on the technical available tools that are deconstructed in order to identify their idiosyncratic contribution. Former literature on the topic exists but this paper offers a novel discussion in its fourth part by restating the problem with a different approach, nesting a last contribution in the identification of novel ways to investigate and areas address the measurement/value issues.
1. Ceci n'est pas une pipe\(^1\): how French thinkers have historically thought the duality in reality and materiality

1.1 *The key concepts in the problem of universals and its triple temporality: from Ancient Greeks to the Middle Ages Parisian quarrel*

The individuation enigma, i.e. the path from generality or universality to particularity, originates in a divergent interpretation of the world by to Ancients realists (as opposed to sophists) Plato's and Aristotle's. An exhaustive review of the Ancient Greek' thoughts isn't the object of this article, our retrospective selects only a few proposals likely to find an echo in the current accounting concerns and discussed in the present article. To Plato, a realist often qualified as idealist (we should say “realist of ideas”, to avoid contemporary's signification of this word, or, as wrote Libera\(^2\) (2004b, p. 1330) “transcendent realist”), individuals are poor representations of perfect ideas, ingrained in a realm of abstract forms, also described as universals standing apart from the physical world. These outside-of-the-matter abstract forms (Plato’s “Ideas”) possess however the highest and most essential kind of reality. Plato introduces the three temporalities, anteriority, insides or posteriority to the thing, but to him, only the latter allows the knowledge of the thing in its own nature. For a better understanding of this approach, we borrow Laclau's (1996, Emancipations, p. 22) description: “[This] approach asserts [...] that there is an uncontaminated dividing line between the universal and the particular [...] and that the pole of the universal is entirely graspable by reason”. The polarization of the couple indicates an impossible mediation

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\(^1\) Tribute to the Belgian painter René Magritte (1898-1967), a French speaking Belgian who defended the idea that a representation of an object is not the object. “Ceci n’est pas une pipe” is one of his major piece of art, ironically painted in 1929.

\(^2\) Libera is a French philosopher, professor in Collège de France whose contribution in the problem of universals capture has been celebrated. His book is translated in many foreign languages, including Italian.
between the universality and the particularity, while the latter can only corrupt the former. Indeed, any denial of universality – through asserting one's particularism for example – ends in an ultimate corruption of being. Aristotle, a realist and a pupil of Plato’s, suggests that essence cannot exist by its own, with no reference to the tangible. He denies transcendence of ideas and considers as non separable the shape and the matter, a combination expressed in a most common way better known by accountants, the form and the substance, the letter and the spirit... Aristotle's logical reading offers to identify categories of universal or predicables rather than essences or substances. Another feature in Aristotle's thoughts in the concept of mimesis (often simply translated as a representation), identified twofold: the plain imitation of nature and its stylization. Mimesis describes the arts of imitation, that is not just a replication but rather include all manners in which reality can be captured. In Poetics, Aristotle describes three possible ways of imitating: “the first imitates how things existed or exist, the second describes things as we tell or believe that they are while the last describes things as they should be (our translation, based on a translation by Ruelle in 1922)”.

This leaves open the questions about the nature of universals, as clearly stated by Porphyry of Tyre (234-305?) in its Isagôgè a few centuries later (Libera, 2004b, p. 1329, our translation):

“[Concerning genus and species, the question is to know:] 

Levinas a French philosopher will further the reasoning in the identification of the Other that lays in some unreachable space and that differs from the I.

With a subtlety: predicable is what can be said of many while universals is what can be in many. The first is a term, the second a thing or a property (Libera, 2004a, p. 1006)

Where “reality” recovers different realities. For Plato, mimesis mostly refers to imitation whereas for Aristotle, it is more a question of representation (Lichtenstein, 2004, 786-87)
1) whether they exist in themselves or only as pure concepts;

2) and if they exist in themselves, are they tangible or intangible;

3) and, in the last case, do they exist separately from sensible objects or are they existing in them and in relation with them.”

Finally Porphyry, who was born in nowadays Lebanon but perfected his education in Roma and healed his mind in Sicily, where he wrote his authoritarian work on logics by inserting Aristotle’s categorizations into a neoplatonician framework, the definition of five universals: species (eidos), gender (genos), difference (diaphora), proper (idion) and accident (sumbebekos). Notably, his work is still the reference in living species classification.

All these metaphysics were brought to Middle Ages by Boethius, a Christian philosopher born in Roma circa 470, who among other things, translated Aristotle’s work and part of Plato’s as well as Porphyry’s (notably his Isagôgè). Contemporary of Boethius is Ammonius (philosophus) who, as Boethius did, wrote a comment on the Isagôgè. Remarquably, in this comment he clearly emphasized three types of universals in an attempt to reconcile Plato’s and Aristotle’s theories: theological (Plato), physical (Plato and Aristotle) and logical (Aristotle) (Libera, 2004b, p. 1332). Ammonius invites us to imagine a seal portraying, Achilles for instance, and many pieces of wax marked by this seal. Someone later considering the marked pieces of wax will know that each specific mark comes from the same print and will therefore know that the seal is anterior to multiples (allowing the emergence of the notion of ante rem). This observer will also see that imprints are in the pieces of wax (here, the one of in re) whereas, after the printer has made the proofs, he has the knowledge of his experience (finally, the notion of post rem). In other words, as commented by another one of their contemporary, the Christian Sergius of Reshaina (Libera, 2004b, p. 1332): “Species and genus divided this way. Some are at the Creator level, they are said simples and primes.
Others are in matters and are said materials and naturals. Others are in the mind and are said finals and intellectuals.” (our translation)

The advances in logics will remain undisputed for about six centuries and until the question of universality is again brought forward in France⁶ between the masters of the Paris Universities, of Arts on one side and of Theology on the other one, under the name of metaphysics or theology of philosophies. Guillaume de Champeaux, a monk, ignited the base with his building of a radical realism theory, defending the idea of a unique universal, from which the form is issued, diversity being generated by accidents. Reversely, the inexistence of accidents results in a unique substance (Erismann, 2002). To him, there is uniqueness in the essence for all individuals but the uniqueness of material essence is undecided. Interestingly, this differentiation remains present in the structuralist functionalism of Luhmann (1999), where it describes the unavoidable evolution of a sub-system. Radical realism was first sharply condemned by Roscelin de Compiègne, said to be the founder of nominalism, for whom things do exist insofar as they can be named. The struggle intensified with Pierre Abélard, a pupil of Guillaume de Champeaux, fiercely attacking (and refuting) radical realism. He proposed a theory — the conceptualism — merging Champeaux’s and Roscelin’s. The defendants of radical realism are now not only opposed to nominalists but face the new emerging conceptualism for which concepts exist, in an abstract form, but derive from sensible singularities. In re is an opposed Aristotelian stance offering grounds to the forthcoming constructivist movement in which universals are instrumental, for they can only be the sprouts of human imputations on the basis of commonalities and in the

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⁶ For a detailed description of the historical events, one can read Lafleur (2005).
ignorance of differentiating factors. In that sense, universals make sense but only through building an external reality.

At this point, the times were mature for the emergence of two almost simultaneous philosophers, both friars: Thomas Aquinas (1224-1274), a Dominican and Jean Duns Scotus (1266-1308), a Franciscan. Thomas Aquinas, in an opportunistic way to capture the Greek wisdom in the foundation of a Christian theology as a science, proposes a triple distinction: the form (mathematic), the universal (belonging to all sciences and particularly to physics) and the separation (referring to divine science or metaphysics, and meaning an immaterial substance). He then theorized the Ancient’s philosophy to fit the mystery of God in saying that only one substance (namely God) instantiates every material thing, the individuation being realized by a given matter and every creature being essence and existence. Jean Duns Scotus who coined the neologism reality (Courtine, 2004a) refutes that any given matter can individuate beings and opposes ecceity, which refers to all properties of any kind making a thing this thing. He asserted that ‘socrateity’ (a proper ecceity) made Socrates what he was, and that this is the only cause. Universals are, thus, neither coming from a Higher Principle, neither made accessible by the sense but only able to capture the presence. Followers of Thomas Aquinas are referred as “Thomists” and scholars of Duns Scotus are said “Scotists”. Courtine (2004b, 1060) locates the meaning of realitas in the doctrine of formalities in the Scotist tradition. It means that realitas relies to a given essence, objectively interpreted by the spirit. The correct translation of this Scotist realitas is “essentiality”.

The couple universal/singular subject to the early Greek opposition is thought not unique. Another issue addresses the nature of the object that is so qualified: is it a concrete reality or a concept? Pierre Auriol, a Franciscan, also Scotist, strongly defended that distinguishing between the being and its essence is impossible through two philosophical conceptions: the
essential thing (*res essentialis*) versus the current reality (*realitas actualis*). The essential thing, is an essential reality (the ecceity, the ‘stoneity’ for a stone) whereas the current reality, the fact that this stone is such, that the stone, in its actuality is unique, is accidental. Both realities exist and are part of the stone (Courtine, 2004b, p. 1084).

The dispute didn’t end with Thomists and Scotists, but, as Libera (2004b, p. 1333) puts it, modern nominalism and realism perpetuated the Middle Ages Plato-Aristotle debate. The discussion regarding universals will probably not end soon as for some philosophers of the 21st century the debate regarding universal equivocity might be either fundamental as for Etienne Balibar or absurd, as it is for Alain Badiou (Balibar, 2010, p. 79)...

For an intensive and crowdly explanation deserves a graphical support, figure 1 casts of the actors and some of their contributions.

**Figure 1: Philosophers’ cast**

![Figure 1: Philosophers’ cast](image)

As conclusion for this section, we would like to emphasize the triple temporal orientations which allow for the recognition of three types of universalisms: the one that is anterior to
the thing \textit{(ante rem, radical realism e.g.)}, the one that lies in the thing \textit{(in re, conceptualism e.g.)}, and the one that is posterior to the thing \textit{(post rem, nominalism e.g.)} and the identification of five universals able to capture a reliable definition of an object\textsuperscript{7}.

\textbf{1.2 From Ancient Greeks and Middle Ages to Moderns}

Our journey with French thinkers and their roots in realism/rationalism continues with three great — partly — contemporary French philosophers: Henri Bergson (1859-1941), Gilles Deleuze (1925-1995) and Emmanuel Lévinas (1906-1995). One might think there is a very important time lap between Middle Ages and nowadays to consider a continuity in our demonstration, bypassing philosophers like Descartes, Leibnitz, the ones of the Enlightenment... Our choice finds two justifications. The first one, as previously stated, is that times perpetuated the Plato-Aristotle debate. The second one is that we attach a great attention to Bergson’s ideas for whom philosophy has to be re-founded. Indeed, Bergson showed the difference in nature between the geometrical, spatialized time and the real movement while his main contribution lied in the provision of “one of the most developed methodology in philosophy” (Deleuze, 1966). To Deleuze, such an approach deserves the name of “superior empiricism”, it is not about constructing something but finding out what is there. According to Bergson, philosophers previously made The Great Mistake in that (Bergson, 2014, p. 49) “Duration is always expressed in length. Terms pointing out time are borrowed from the terminology of the space. When we evoke time, space is responding to the call” \textit{(our translation)}. Having missed this essential distinction, the whole philosophy is then to be rebuilt (Panero, 2003, p. 277). Of course we are not saying that everything that

\textsuperscript{7} To Porphyry, three universals out of 5 are needed to well define an object.
has preceded Bergson’s theory is of no interest, but for our purpose we think that it is sufficient to have the question of universals in mind and to directly shift to Bergson. Bergson's method wears a simple name: intuition. Intuition is defined as an immediate knowledge — the absolute direct consciousness — of the essence in reality (the fundamental sense), that is duration. Intuitively knowing something is to Bergson about recognizing in it the three characteristics of duration: succession, continuity and change (Bouaniche, 2006). The Bergsonian philosophy grounds on a set of three major concepts: duration, memory and the non-translated ‘élan vital’. Duration is mostly the reason for things to be, it is nothing like a general principle but the variable essence of things. Memory is “the totality of the real in that it maintains itself in the form of a global unconscious”, with the capacity to repeat the past, “past is eternal and of all times (...) it is pure ontology” (Deleuze, 1966). Finally, the ‘élan vital’ stands for the constant effort dedicated to development, even blossom. In a first differentiation, life has a dual aspect, vegetal or animal, while the latter follows two trends: instinct and intelligence. Notably, Bergson's analysis precedes - for half a century - the System 1 System 2 of Kahneman (2011) as this clearly appears when he writes (Bergson, 2014, p. 81) that “The temptation is high to apply to the depth of the mind processes that are successful near the surface” (our translation). Duration and memory are interlinked in the Bergsonian philosophy in such a developed way that the author is able to state a Theory of Memory, where duration gathers memory, consciousness and liberty. In this identity nests a novel interpretation of the Ancient Greeks' temporalities. Memory is depicted as both a conservation and an accumulation of past in the present, whether the image of past is clearly distinct from the one of the present or whether it testifies of an ever growing burden that one carries on his/her shoulder as time goes by. Memory therefore bears two forms: a cloth of souvenirs or a contraction of a multiplicity of
instants. Subsequently, the Bergsonian theory identifies a difference in nature between past and present, matter and memory, perception and souvenir. Present has no proper existence, as a pure becoming it lies out of itself; it is the most contracted degree of the past. Present has however no ability in reconstructing the past. For doing so, one has to go back to the past to capture pictures then realized. To do so, memories needs to be activated by two simultaneous movements: a translation coming before the experience and a rotation, selecting a standing point to face the most useful side of the situation.

L’ ‘élan vital’ deals with the unification of all degrees, where life as a ultimate duration merges with a two step differentiation, first the impure is divided, then the pure. Implicit to this analysis are the two moments of Bergson's methodology where the possible has no reality, this point seems to us a crucial, an axial point in the evaluation methods analysis. To Bergson indeed, virtual is not actual but possesses a reality. Amongst the obstacle to reality, materiality is one of them.

In defining a methodology to accurately address problems, Bergson pointed the habits of philosophers to misaddress them, for examining them in space rather than in terms of duration. False problems have therefore too often focused on results or production instead of providing more attention to trends and “differences”. Then differences were contemplated; they were lying in degrees rather than in the nature of objects. The focus on the output, size, proportions and complexity (degrees) rather than on the trend or production process (nature) has therefore misled many while the true differences are the ones structuring the processes. Intuition has then a clearly assigned role: finding back the internal differences by nature.

Bergson's methodology consequently features the following rules:
• Rule n°1: Challenge the true and false into the problems themselves in order to
denounce false problems, and to reconcile truth and creation at the problem level.
False problems are misstated or inexistent ones. The first emerge from poor analysis
and the second originate in confusion. False problems emerge when one can't bypass
the experience to focus on experience conditions.

• Rule n°2: Fight illusion; find again the true differences in nature or reality
articulations. Reality is not only cut in natural articulations or differences in nature
but it also is a convergence to a same ideal or virtual point.

• Rule n°3: Pose the problem; solve it in terms of time and not in terms of space.

Deleuze, inspired by Bergson identified bipolar sides to each singular event, observing that
the real as having two sides, an actual one and a virtual one (Marrati, 2007, p. 265). The
‘actual’ part of the real contains every empirically accessible object whereas its ‘virtual’ part
is what is real without being ‘actual’ (Cherniavsky, 2012, p. 520). Deleuze's notion of ‘virtual’
is very close to Bergson’s one of ‘possible’: their reality is the one of the time (in its proper
sense, in duration in other words). For Bergson, the possible does not precede the reality but
any realization (the recognition of a reality) retrospectively evidences its possibility, which
was nonexistent before. By thinking the possible in this way, one becomes ready to welcome
new things no matter how improbable they are, help recognizing an excluded third
(Nicolescu, 1998; Morin, 2005 and Aristotle...) and thereby improve the management of
complexity. The methodology pursues the objective to rediscover “the conditions of the real
experience” and will be furthered by Bergson's follower.

To one of them, namely Gilles Deleuze, the philosophical work is a meccano. A concept can
be separated from the process at the origin of its own emergence. This stance signs his
definitive empiricist orientation. Concepts can only be known if they have been previously
created, in a creation process grounded on an intuition that remains proper to the concept. This belief leads to a definition of concept as a multitude of singularities\(^8\), of irreducible components with no function to bring to unity but rather to a general form that is to be structured. Concepts are therefore as characterized by fuzzy lines, adapted to the variation of reality. Deleuze's demonstration becomes interesting to accountants in the subsequent analogy between concepts and intangibles, neither a thing nor a body but rather an event exceeding anything lived and escaping any actualization. In such, concepts are only a departing point to sketch a plane of immanence embedding any deviations, redundancies or accidents, all those variations before implied. Geometrically shaped, the plane has no boundaries where concepts become active production rather than predefined forms. The plane has to be understood as the ground for concepts construction, the deterritorialization of philosophy (Sibertin-Blanc, 2010). Deleuze's method also mobilizes a third part that we here circumvent: the conceptual character. The trinity allows a new problematization, as ‘élan vital’ of philosophy, where the value of a problem is measured not by the truth it brings but by its importance, its interest and novelty (Bouaniche, 2006).

**1.3 From theory to practice**

According to Richard (2001), the conceptual debate on the way results and balance sheets should be measured is at least four centuries old, as testified by its inclusion in what is often described as the oldest management book in history "*Le parfait négociant ou instruction générale pour ce qui concerne le commerce (The perfect merchant, or general guidelines to what is relative to trade)*". The French manual was issued in 1675, two years after

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\(^8\) This idea is owned to Rienman an erudite scientist who coined the theory of multiplicity, relative to multidimensional space and able to go beyond the Euclidian space.
“l'ordonnance Savary”, a law order that pioneered the compulsory financial reporting activity in humankind history. The necessity of a double lens accountability already showed through Savary's yet unresolved proposal of two distinct balance sheets: a dynamic one and a static one. With time and space diffusion, the rhetoric used became a first semantic issue that notably regards the adequacy of the term ‘measurement’ when referring to the value of an asset. More recently, the debate has focused on fair value, not only as a possible measurement candidate (and the preferred one for the International and American standard setters), but also because it revived the long haul debate while the modern one focuses on its existence, its contribution and its perils (Casta and Colasse, 2001).

2. Measurement and value: a revival of the scholastic debate?

2.1 Measurement in accounting: the concepts
One of the still in progress debate in accounting or financial reporting that may be separately considered out of this article relies on the uniformity of value measurements.

In many common dictionaries, measurement is defined as an estimation of a value or quantity, requiring in that purpose a reference unit. The action of measurement ascertains the size, amount, or degree (of something) by using an instrument or device marked in standard units, therefore implying the existence of the measured object (its reality) in a quest of a reliable measure, the displayed results can be understood as obeying to a materiality constraint. On another hand, the term value originates in a double semantics, referring to the worth of someone - valorous - or to the proper condition of an object or subject excepted to fulfill a specific use. The usage of value as a measure of a tradable object, through the act of evaluation into a monetary measure, will only appear in the 13th century (Rey, 2000). Interestingly, the modern era has reversed the trajectory while
associating the measurement rhetoric with the development of a consumption era, crystallized in the example of a slogan for a survey service "What can be measured can be improved" (Vatin et al, 2006). If both terms have Latin origins, the second one - valor - has proved being easy to break down into various forms: evaluation, valuation, devaluation, evaluator, valuable... In accounting it is nowadays widely agreed that a measurement measures a value (Barth, 2014), while former works referred to the measurement of profit or solvability (Richard, 2001).

Amongst authors accepting the use of the word ‘measurement’, some assume that only a unique and consistent criterion can be applied (Chambers 1960, 2006), associating the ‘measurement’ action to the provision of neutral, objective and relevant information to all users (Chambers and Wolnizer 1990). A part of literature and national or international accounting standard setters (IASB and FASB) show a different view on this point, defending that measurement could be used only when we can observe what we are trying to measure (IASB 2014). Such a statement relies on the idea that having a single preselected measurement criterion can neither well reflect market conditions and the economic use of an asset nor meet users’ needs (Onida 1970; Whittington 2010, EFRAG 2014, Barth 2014). In this purpose, a number of different possible measurement bases (entry price, exit price, fair value, value in use, historical cost, replacement cost, net realizable value, etc), driven by prices (determined by market), by entity-specific values (as value in use) or by other different logics (as net realizable value) has become subject to conceptual interpretations while becoming measurement candidates in the conceptual frameworks of the pre-cited standard setters. Some of the measurement challengers have been organized in Nobes' (2005) work on the basis of a temporal differentiation, as well as in Alexander’s (2006), whom suggested a continuum in measures (Figures 1 and 2).
The first one, of Nobes depicts a discrete cut-off in a seemingly threefold temporal orientation: past, present and future. The entry values are observable in the past and include a present boundary with replacement costs, a measurement historically subject to controversy (Walton, 2001). Exit values describe the potential use of an object or its price, assuming a possible transaction. In the middle, sets the fair value. Likely understood as a market concept or a price exchange, fair value is considered as something in between entry price and exit price, like a mid-price, by Nobes, or as an entry price (including buying costs), as an exit price (deducting selling costs) or both, by Alexander. Rejecting the importance of temporalities through entry and exit prices, the latter advocates a continuum in possible values, and interprets fair value as a possible reconciliation between entry and exit prices.
Notably, the FASB initial proposal enclosed many more possible pricing or evaluation methods, with past, and current entry and exit prices and interestingly, a “value in use” that doesn’t fit the — simplified — implicit matrix that we attempted to represent below (Figure 4). Columns relate to temporalities and lines to spatial locations. It is not the purpose of that article to come provide with a critic of the content but as a reminder, as the matrix lists not less than 49 measurement methods. To focus on the main dispute topic, it may be interesting to point that Historical Costs only lay in the Past column while Fair Value stands in middle box and can also be found as a candidate in Present/Exit box, when there is no related price.

Figure 4: A matrix representation of FASB measurement candidates (FASB, 2008).

<table>
<thead>
<tr>
<th>Temporality/ Spatiality</th>
<th>Past</th>
<th>Present</th>
<th>Future</th>
<th>Value in Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry</td>
<td>With or without related prices</td>
<td>With or without related prices</td>
<td>With or without related prices</td>
<td></td>
</tr>
<tr>
<td>Mid</td>
<td>Modified</td>
<td>Equilibrium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exit</td>
<td>With or without related prices</td>
<td>With or without related prices</td>
<td>With or without related prices</td>
<td></td>
</tr>
</tbody>
</table>

This standing-alone position of Value in Use raises interesting questions in the light of Bergson's analysis, calling for two commentaries. The first one is that obviously, the idea of entry, mid and exit are spatial interpretation link to the organization: the asset is coming in (entry), being processed (modified or equilibrium) or going out (exit) and that despite the naming of the categorization “Measurement basis candidates by Time frame”, the classification may more likely answer to a production categorization than a time one. To Bergson's, it may be there a difference in degree. To attain a difference in nature, it may be necessary to give more attention to the structure of the calculation, i.e. to the construction of the 49 cited measurement methods.
The accumulation of the analysis elements here before stated invites us to consider that the measurement issue has been treated as a false problem and that a better problematization may be possible by uncovering the nature of evaluation methodologies, it is the object of the rest of this paper. First we attempt to find the accurate differentiations between methods by designing a Porphyry tree. Next, we pace the evaluation methods used in the field on the same tree.

2.2 A map for measures

As previously stated, there are five universals: species, gender, difference, proper and accident. Genders predicate in species, where species have proper permitting the difference between gender and specie. The accident is representing a characteristic of a thing. Applying Porphyry’s tree to measure, we obtain the following tree:
Figure 5: Porphyry tree applied to ‘Measure’
3. Capture the intangible value: the case of patents

3.1 Justifications for the patent case study

If not the topic of the present workshop, there are many reasons to be interested in IP. In an information society, the value of intangibles becomes central and nurtures the interest for research on intangible assets or non-monetary items without physical substance. As the latter become numerous, we needed to arbitrary restrict the scope of this article to one category of intangibles characterized by its multiple source of risks: the patent. A patent can be defined as a property right that provides the owner with the right – but not the obligation – to exclude any third part from the exploitation of an invention, for a given duration. Concretely, the patent can provide with a monopoly on an invention, which exercise can be costly, and even perilous as soon an infringement procedure has started. All patents don't provide the holders with the same kind of usages (Giuri et al., 2007): in Europe, about half of them are dedicated to internal use at the source of some competitive advantage; 6,5% are licensed; 3% are objects of cross-licensed contracts; 4% combine license contracts and internal use; 19% are barrier patents aimed at bothering the competitors while the remaining; 17% are sleeping patents, that are also anticipated protection reserves.

With all those different usages, the sources of revenues will also differ, either from their origins when generated by exclusive or simple rights, or the consequence of court disputes, or in their duration, that if originally linked to the usage time can be threatened by a sudden obsolescence. Exposures to uncertainties are in consequence numerous (Guellec et al., 2010, p.33 et 48; Baecker, 2007). A first category of risk that patents are facing is the judicial risk bearing several facets: infringement risk, cancellation risk due to a procedural irregularity, or a late deposit. Technological risk is a second category that covers the potential striking and sometimes unpredictable obsolescence, probably dependent to the sector of activity. Other
technological risks are the probable non-exploitation of the patent, or its lack of relative performance, or the invention deficit of operationnality. A last uncertainty category is economic and mostly linked to the market, that is potentially inexistent, or not mature enough or already invested by a competing product.

Our choice is then justified by the fact that patents bear many interesting features such as a high uncertainty exposure and because they recently questioned the reliability of the evaluation models while some transactions fostered the interest for their high prices, that often were previously invisible to economic agents. Indeed, in the case of such epiphenomena, possibly due to contingent factors or a combination of some, a reliable evaluation should be able to capture the dissymmetry of the potential values distribution, for representing the risk associated to the asset or group of assets that are the object of the evaluation process. Interestingly, Gittelman (2008) provides with an illustration of patent values distribution characterized by a few extreme values – able to draw a lot of public attention – and an important concentration of low values. This non Gaussian distribution and dissymmetry recall that beyond the expression of a price, the evaluation process also implies a capture of the embedded risks that a focal attention on the numerical results may too often offset. One objective of our paper is to enlarge the focus on both risk and value, in that order.

Another reason why we chose to focus on patents is for the insights they bring about the limits of evaluation methods. Indeed, since 2011, the amounts traded on patents markets have reached highs of several billions dollars, while they had hardly reached half a million five years before (Monk (2009) cited by Guellec et al. (2010, p. 38)). Undoubtedly, the most emblematic case of the period has been Nortel, a telecommunication company that sold its patents for 4,5 billions USD when less than that amount was needed to recapitalize the
company gone bankrupt. The subsequent questions are striking: how can a company ignore the value of its assets to the point that it makes it disappear? As a corollary, how could the market ignore such a value and misprice the assets to the extent that agents missed a potential wealth and condemned a company? Is such an informational asymmetry reducible? To better understand what is at play in terms of evaluation, a first step in our reflection studies the available alternatives to understand both what each of them seizes and what it misses. Such an examination requires defining the context that suits the use of the method, as well as its objectives and its temporal orientation. More insights also appear when the producer of the evaluation is identified, together with its receptor and the operational conditions.

On the topic, an abundant literature has been produced in the past decades that we choose to rely on. The observation of the practices highlights that the applied exercise in corporate or project evaluation has become more complex with the difficult capture of intangible values associated to an entity, potentially at the source of unexpected observations and behaviors, as extreme values observed on the patent markets have testified. A patent happens to be an asset which value can reach extremes, constraining the evaluator to distinguish epiphenomena from recurrent events, which repetition would require the emergence of new evaluation models in a systematized use (Zajdenweber, 2000/2009; Taleb, 2008).

Considering the scope of the reported objects to evaluate, our article addresses the problematic of the correspondence between potential user’s needs for financial evaluation – to be reported – and the available technical methods, as applied in the field. Bringing the topic forward will likely shed light on some hidden sides of technical methodologies, and offer a deeper understanding of the implications of their use to standard setters, preparers
and auditors. To serve this goal, we choose to deconstruct the methodologies that are often taken for black boxes to restructure them through the building of a multifactorial typology. Several subquestions arouse. What methods can we rely on to bridge the gap between the evaluation needs as conceptually formulated by standard setters and the know-how from evaluation practitioners? In other words, is it possible to bridge the gap from the field - usually using capital budgeting practices - to the reported figures that serve another kind of decision making? And if it is, what does the use of methodologies addressing capital budgeting issues imply in terms of embedded assumptions? Do those methods apply for decision making as often fuzzily described by standard setters, as a synonym to portfolio management? A twofold analysis resulting in a dual typology is chosen to address those issues. Our first level of analysis is extrinsic. Dealing with the different contexts of evaluation, it deciphers the way in which each context sets different expectations, implicitly narrowing the scope of the evaluation process, or imposing a direction for it. The second level of analysis is the intrinsic one, it deciphers the content of the evaluation methods and their scope, whether temporal or technical, according to the information producer and the targeted receptor the method was initially built for. Both analysis levels result in a typology, the first one being a journey inside the method while the second travels through the reasons why a method could be mobilized.

*Patent: an asset contextualized by the nature of the operation*

While this work grounds on a previous research (Blum & Stroebel, 2011) focused on patent evaluation methods, qualifying the available techniques as normative or empirical, it differs in many points. It is not a literature review as the preceding one but a typology proposal aiming at a better understanding of the existing practiced methods in patent evaluation. A second differing feature of this work is the absence of assessment of the real option
method, now considered as a true opportunity. Last and not least, our preceding work reflected on the dynamic of value and didn't target an accountant audience, while this work attempts to bridge the gap between the field usages and the conceptual reporting issues.

Literature sometimes asserts that the production of the image of immaterial assets remains problematic as fuzzy (Fustec and Marois, 2007) and is likely fed by two sources: the environmental uncertainty and informational asymmetry, the latter being reduced with increased number of transactions (Lemley et Shapiro, 2005). However, when patents are concerned, one has to reckon the absence of markets and its seldom solicitation. There exist however a multiplicity of purposes that suggest the potential simultaneous existence of a diversity of well fitting models to each purpose. This section recalls the three financial operations often described with patent as main object. We suggest three other operations that include communication ones.

Breese and Kermadec (2009) identify three types of financial operations relying on an evaluation of intellectual properties: (1) financial transactions as takeovers or patents sales, including auctions settlements, all can take place in a organized or an OTC market and inevitably end up in a price settlement resulting from the meeting of at least two expressed values; (2) tax obligations if they include the recognition of flows that can be allocated to an asset; (3) strategic reasons that aim to display a patent as an indicator of the future potential of a company, through extra financial communication. The value revealing power of each operation differs. Tax obligations are past orientated and reveal an historical value as measured by common rules/laws. Financial transactions and strategic reasons contribute to feed the market liquidity and allow convergence towards an equilibrium price. Strategic reasons reduce the level of informational asymmetry when substantial pieces of information are delivered to co-contractors, such as employees or funds providers.
This threefold framework suggests an immediate comment as going through the list reveals that the receptors of the evaluation are necessarily different as the context changes. In the first case, both the market and investors is the target. In the following cases, state and debtors or funds providers (not necessarily through the market) are the respective receptors of evaluations. This observation justifies that the evaluation aims not being the same, the processes have chances to differ, and therefore their outcomes may differ too.

Beyond the Breese and Kermode’s list, we identify at least three supplementary contexts requiring a specific evaluation: (4) reporting towards shareholders and stakeholders when they require justifications about past managerial actions, that would more efficiently be restated in the context of the decision, i.e. expressing the perspective the manager had at the time of the decision (Biondi et al., 2012); (5) a performance measurement at an intermediary milestone can be necessary for a strategic realignment or compensation assessment, more likely taking place at the end of the exercise, will estimate the potential wealth that is not yet realized. The latter operation should more likely concern internal relations. Finally, a sixth context of evaluation is the one previously illustrated in the Nortel/Rockstar case, it is indeed the context allowing the observations of the most extreme values, but can not be considered as an evaluation pursuing the settlement of a transaction through reaching an equilibrium price, it is more likely the definition of a consensus between costs and benefits from a peculiar and very unstable point of view: the one of a judge, therefore it is highly individual-dependent.

Altogether, we have identified six reasons for an evaluation, each of them obeying to different decisional logics that are detailed in table 1. A first difference relies in the passive versus persuasive form of an evaluation. A passive form could be defined as a kind of evaluation aiming to represent an object with the least impact on its value, that in
consequence remains as objective as possible. Reporting for tax destination is one type of passive evaluation, often pursuing a dual target of comparability and fairness. A financial reporting destined to all stakeholders may be more problematic as each stakeholder might consider information through a different lens, observing it from diversified angles, with diverse expectations. One possible stance would consider reducing the possible angles by displaying the essential information required by users, the “smallest common denominator” free of any orientation to insure a passive form. Another stance would consist in multiplying the possible stances, with the risk of influencing and jamming the message due to an informational overflow, that moreover will bear intentions and become more persuasive.

3.2 The patent evaluation in practice

The dissymmetry in potential values issue is illustrated by Gittelman (2008) when the author provides us with some key reference points to draw this dissymmetry: the average value of patents happens to be 3 millions while the median is only 0,3 million. This conveniently describes distributions that are characterized by a few numbers of items acting as leverage. The subsequent question addresses the likeness of an evaluation method that could be able to capture this peculiar behavior, not exclusive to patents, or at least, to adapt the available methods to take account in the best possible way of such specificities.

Previous literature reviews have already compared the different evaluation methods (Lantz and Tre-Hardy, 2006; Guellec et al., 2010, p. 50 to 57; Blum and Stroebel, 2011) but we aim to bring further insights by describing and discussing the embedded and sometimes only implicit treatment of risks each method applies. Among the following, we find two normative models originating in accounting sources: the cost approach and the cash-flow approach, while two other methods are considered empirical as they originate from field
practices and are operating like decision heuristics: the 25% rule and the comparable approach.

The cost approach equates the patent value with the accumulation of expenses dedicated to the patent process. Consistent with an historical cost accounting, the resulting value expresses the past patrimonial strategy of the company, and neither does intend to measure the performance nor to describe the future perspectives linked to the asset. The evaluations based on costs will vary accordingly to the accounting methods applied, and mainly on the possibility to capitalize expenses. Concretely, the possible capitalization of expenses (research or development) will in the same proportion increase the value of the asset. The derived project representation is eloquent: negative flows representing series of discrete spending are cumulated to build a unique positive flow: the asset value. The main pitfall of this method relies in the implicit capture of risks: the model merges the risks and opportunities concepts as any risk taking (in terms of expenses) becomes a positive value generator. The representation well describes this paradox: negative flows as a discrete series of expenses are cumulated through times, and eventually their accumulation transforms into a positive value. Instead of describing the past managerial choice, we then observe a temporary result of their choices. While expensing becomes value, such a method can foster inefficient strategies, feeding incentives to spend money in a project that doesn't create value. Also, it fails to provide with information on the quality of the patent as "some patents result from lightning ideas requiring little expenses but widely contributing to the sales when other patents display an important level of cumulated expenses when their contribution to sales is hardly significant" (Guelléc et al, 2010, p. 51). On a conceptual basis, one can argue that the cost approach confuses the price of the invention and the value of the patent. For
this reason, the cost approach may not be appropriate to estimate a market price of the asset.

The cash flow approach also referred to as Net Present Value (NPV), is currently considered as the most realistic available method, provided that projections are computable, that is possible with a clear vision for the future of the project, and ideally applies when the project has reached a close to production stage. The approach captures the investors’ anticipations and subscribes to a market logic, as NPV represents the best possible estimation of the market value (Copeland and Antikarov, 2005), therefore, it also assumes market efficiency. On such basis, it became the reference method for the Deutsches Institut für Normung⁹.

Practically, the computed flows can result from royalties in case of a licensed contract, or a portion of the benefit that can be allocated to the patent. Flows generated by the patent project are discounted at a risk-adjusted rate, a crucial variable in the evaluation process. The approach embeds the usual pitfalls of the DCF (Discounted cash Flows) methods: the difficult definition of a risk adjusted discounting rate that can possibly represent the cost of capital in the long term. Surveys tend to prove the existence of a gap between theory and practice (Graham and Harvey, 2001; Ruback, 2011) as quantification remains a rough calculation, and also because it is tempting to only reflect what is known, i.e. past risks, potentially significantly diverging from future risks;

- in the DCF methods, the increase in risks translates into a raising rate, that eventually reduces the Net Present Value. Such a relation ignores the opportunities that risk taking embeds and that sometimes results in higher cash flows;
- DCF methods ignore the multiple possibilities offered to make the project evolve all along its life cycle. On the contrary, the project is described as linear and

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characterized by a unique entry point and a single path to follow; such a vision omits the offered decision stages during the project life and the multiplicity of paths that can be derived;

• the project volatility is usually estimated trough arbitrary scenarios;
• the NPV has greater chances to be negative as expenses stages weight more in the calculation process due to the delay before getting some positive outcomes. This is even truer when sequential projects are studied, with diminishing chances of success during the development stage.

The 25% approach, or revenues approach (Breese and Kermadec, 2009) is an empirical methodology serving the assessment of a "reasonable" level of royalties, and therefore, has been widely adopted to settle legal disputes in the USA (Vernon and Roux-Vaillard, 2006). The method suggests a representation shaped in a cake, split in two unequal portions: 25% of the generated profits are allocated to the license seller applying the operational process (development and production of products using the patents), as the remaining 75% return to the licenses property, considered as the main risk taker. The method follows four stages:

• estimation of the sales linked to the patent usage and estimation of the expected profit for the duration of the license contract;
• estimation of the return on sales: profit / sales (for example, 12%);
• multiplication of the ROS and the revenues portion allocated to the patent owner, the result being the royalty rate (12% x 25% = 3%);
• application of the royalty rate to the net sales by the licensee to assess the monetary value that is the cash flow to the patent owner.

A major drawback of this method lies in the constant risk distribution between the co-contractors. Implicitly, it also suggests that the operations relative to the patents (of products developed on the patent basis) provide a similar profit and loss account than the average product, and as so, assumes a similar level of risks and a similar financing structure for all licensee operations. This fact ignores any specific earning structure in the entity, i.e. its business model. This assumption can only be verified when patents carry process innovations or participate in maintaining the licensee company in an unchanged competitive situation. In any other case, the increase or change in the market shares or the marginal gain
(or loss) associated to the new competitive position is not comprised in the estimation. As a consequence, the specific patent risk is not treated by the method.

This rule has provided the US court with some pretend to be a universal algorithm that allows a fast calculation of royalties to pay. The rule abandon (Shapiro, 2011) finds justifications in the development of patent trolls, as systematizing the outcome of an infringement became a troll incentive, demonstrating an urgent need for a method properly combining a sufficiently high evaluation for discouraging infringement without the collateral effect of simultaneously feeding patent troll activities (Bensussan, 2011). More currently fashionable in litigation is the profit margin approach, assessing the missed profit margins either during suspension time or after if a missed market can be demonstrated. Those earnings oriented methodologies are though coopted by econometrics approaches using multidimensional regressions in order to identify the explicative factors of a patent value.

**The comparable approach** also referred to as "market value" (Guélec et al., 2010; Breese and Kermadec, 2009) defines a value based on former observed transactions involving similar or approaching markets, provided that such markets exist. The reliability of the approach depends on its ability to settle a risk adjusted equilibrium price, implicitly assuming the existence of market efficiency. Efficiency is however difficult to verify in a patent market structure that can't be atomistic, and where assets don't meet the fungibility hypothesis. Withdrawing those fundamental assumptions seems undisputable in the patent case as the value of the asset translates its specificity: "the peculiar case of patents forbids to consider them as a standardized asset " (Guélec et al., 2010 p. 36). Empirically and paradoxically, the possible comparison of patents implies the existence of similar asset, and fosters infringement. The market evaluation therefore comes to compare patents displaying
substantially different characteristics when "incremental differences can dramatically impact the patent value" (Ibid, p.52).

A more recent method could likely better capture the distributions dissymmetries; it is the **Real Option Approach** (ROA). We will spare the reader with usual recap of the method, now extensively exposed in a wide literature (Copeland and Antikarov, 2005; Guyvara'h A. and A. Thauvron, 2010; Blum, 2012). Nevertheless, it seems necessary to remind that ROA obeys to a prospective approach aiming the reconciliation of strategic and financial purposes in the undecidable uncertain projects selection, by providing deciders with a tree formalization, more likely to capture managers' intuition. At the same time, the benefit of the method consists in a clearer explicit visibility of the risks the project is exposed to. A growing number of authors have suggested a link between a patent and the option it provides to its holder, but the absence of a plug-and-play methodology remains obvious. Most existing researches remain at a conceptual level while the ones daring bridging the gap between theory and practice often mobilize a virtual patent. A small number of authors have tested an application on real life patents, either by considering the patent as an option or by considering it as a R&D process. To read more on the topic, an extensive literature review on ROA applied to patents is provided in Blum and Stroebel (2011).

4. Discussion and typology

**Context and contingencies**

All those questions have fostered many comments in the last years and renewed the interest of many professionals for evaluation methods and their results, which for some should be included in financial statements. Theoretically speaking, a proper answer would suppose that financial statements could include many evaluation results, as they may be
complementary: historical cost, fair value, expected value and other criteria. But before engaging in such a path, it is worth wondering why evaluation methods, as numerous as they are, couldn’t capture the value of Nortel’s assets. Why did the price go so high? Why were observers surprised by the amounts traded? Are those extreme transactions isolated or are they a symptom of a real informational deficit, maybe betraying a heavier trend? In the case of Nortel, the answer has recently appeared: the Rockstar consortium that purchased them intends to sue Android, Google, Samsung among others. The purchase can then be interpreted as an option for which Rockstar was ready to pay a high price, that probably no evaluation method could clearly reveal, whether it was based on entity, participant or market view. As we'll see below, the kind of financial operation may have a strong impact on the predictability of the monetary result (whether a simulation or an effective trade).

In the previous section, we have identified six operations subject to a patent evaluation. Their peculiarities are now discussed to build a typology (Table 1). A first distinction relies in the nature of the communication, whether it is passive or persuasive. A passive form is defined as information bearing no or little intention to convince. Here, the intention is assumed to model the information, while little modeling remains acceptable in the absence of a material deviation. Conceptually close from the current reality, the operations seeking a performance measurement will both need to restate facts while suggesting the perseverance of the ongoing trend. The evaluation can then help to measure the in-progress managerial performance in order to estimate the level of deserved compensation. In consequence, it seems difficult to believe that the exercise may remain passive. Earnings management can in that aim be undertaken to instrumentalize a positive image. The provision of such current information focused on the movement (the accident) may more
likely become possible by turning to the market, if deep and active. However, notably today, the interpretation of the adjective "current" may surprisingly be quite elastic: it suits both to a calculation using a quotation at a closing date to provide with a instant picture and it can also refer to the average yearly quotation –possibly corrected from hedging impact – that may more likely describe a moving flow in between two closing dates. With accounting recent changes, present time has become extensible\textsuperscript{10}, SFAS 69 dedicated to mineral resources, is an example.

\textbf{Table 1: Underlying logics in decision contexts}

<table>
<thead>
<tr>
<th>Decision context</th>
<th>Type of operation</th>
<th>Nature of evaluation</th>
<th>Objective</th>
<th>Producer of information</th>
<th>Receptor</th>
<th>Temporal Orientation</th>
<th>Conditions for execution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Financial operations</td>
<td>Persuasive</td>
<td>Price as a meeting point between offer and demand</td>
<td>Buy for the cheapest or sell at the highest price</td>
<td>Preparer</td>
<td>Market</td>
<td>Future</td>
<td>Entity based projections</td>
</tr>
<tr>
<td>Fiscal obligations</td>
<td>Passive</td>
<td>Calculation</td>
<td>Tax payment estimation</td>
<td>Preparer</td>
<td>State</td>
<td>Recent past</td>
<td>Application of uniform rules</td>
</tr>
<tr>
<td>Funds seeking</td>
<td>Persuasive</td>
<td>Communication</td>
<td>Funds collection</td>
<td>Project manager</td>
<td>Fund provider</td>
<td>Future</td>
<td>Entity based projections</td>
</tr>
<tr>
<td>Infringement</td>
<td>Defensive (and) Persuasive</td>
<td>Accounting</td>
<td>Monopoly strengthening</td>
<td>Preparer</td>
<td>Judge</td>
<td>Past w/wo counterfacts</td>
<td>Very judge-dependent (human actor)</td>
</tr>
<tr>
<td>Compensation</td>
<td>Semi-passive Semi-persuasive</td>
<td>Current values</td>
<td>Closing date in progress accomplishment measurement</td>
<td>Preparer</td>
<td>Board or managers</td>
<td>Present in perspective of the past</td>
<td>Application of uniform principles</td>
</tr>
</tbody>
</table>

Another distinctive feature is the temporal orientation of the operations. Two among the cited operations rely on preferably prospective images, i.e. a view of the company or the

\textsuperscript{10} SFAS 69 changed the reserve valuation from "volumes * end-of-year-price" to "volumes * average-of-monthly-prices-of-the-year-adjusted-for-hedging", in the first case, present is the closing date while in the latter it is obviously a year-to-year present.
coming up project that intend to convince investors (whether managers or funds providers) or at least, to justify a bid – like in takeover context –, by promising future performance. In those future oriented contexts, the mobilized methods can only be forward looking. The reality of the outcome is hardly likely as scenarios are here the bases for storytelling.

It appears clearly, after the preceding variations on the sense and essence of six identified contexts that they neither individually bears the same function nor do they pursue similar objectives in value revealing. Fiscal obligations and accounting reporting, if past looking, relate finished decision, expressed with shared rules or principles. As so, they depict historical choices, as expressed in the past, at decision time, recalling their constructed representations. On the contrary, financial transactions and part of strategic issues both participate in the definition of an equilibrium price towards which they converge while more or less contributing to market liquidity.

**Methods characteristics**

Table 2 summarizes the compared characteristics of available evaluation method for patent value assessment. Among those characteristics, one can find the associated level of risks, the initial perimeters the method were designed for, their level of sophistication...

One interesting feature that our reflection suggests is the persuasive aspect of sophisticated method as sophistication has historically been an answer to the quest for a better, more reliable, more detailed storytelling. The story told, when capital budgeting matters, is the result of a shared and debated consensus between deciders who seek to secure their choices in a discretionary space that has become unusually uncomfortable (Martin, 2014).

The consensual formalization, which is built on a collaborative work desiring agility, should restrict the usage of such methods to an internal practice and share. Indeed, the loss in information and sense may be inevitable as the results spread to a wider perimeter of
agents whom didn’t have the chance to participate in the building process, and whom, as a consequence, will be less educated and/or informed (in the sense of ability to understand rather than the access to a quantity of information). The communication of results and assumptions to funds providers, to be efficient, should come with a narrative, and may suppose strategic information spreading. Therefore a trade-off between reporting decisions about future projects and intelligibility is unavoidable. Table 2 can be compared to Table 1 when one wants to pick the most accurate methods in a specific context. Notably, and to our knowledge a key concept for our further developments, no existing research has so far surveyed the effective contribution of a methodology in a decision. Arguably, relying on evaluation methodologies may more likely serve the comprehension of a project than a true measurement assessment. In the end, the spread of a method from a private circle to a public wider perimeter addresses the issue of its big scale intelligibility and also questions the accuracy of making it a financial reporting item. This question is surveyed in more depth in our third part, that we introduce paraphrasing a famous report (Baert and Yanno, 2009) “a method is never neutral, it carries an embedded judgment of value/risk”.

Mobilizing previous philosophical considerations, we observe two “in re” methods: the 25% rule and comparables while cost approach is “post rem” and DCF “ante rem”. Notably, only Option pricing allows a connection between the three temporalities.

**Table 2: Comparison of evaluation methods**

<table>
<thead>
<tr>
<th>Method</th>
<th>Measured dimension</th>
<th>Evaluation period</th>
<th>Temporal orientation</th>
<th>Type of universalism</th>
<th>Assumptions (level 1-2-3 IFRS 13)</th>
<th>Usage peri-meter</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>25% Compensation price</td>
<td>Present ex post</td>
<td>Cumulated past to present time</td>
<td>In re Ante rem</td>
<td>Uniformity and stability in business model</td>
<td>Court/judge</td>
<td>Trial</td>
<td></td>
</tr>
<tr>
<td>Comparable</td>
<td>Similar asset price</td>
<td>Present ex post</td>
<td>Recent past</td>
<td>In re</td>
<td>Comparability of similar assets (level 2 IASB)</td>
<td>Private</td>
<td>Transactions</td>
</tr>
<tr>
<td>Cost approach</td>
<td>Amount spent</td>
<td>Present ex post</td>
<td>Cumulated past to</td>
<td>Post rem</td>
<td>Accuracy of cumulated</td>
<td>Public</td>
<td>Financial Reporting</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th></th>
<th>present time</th>
<th>expenses: costs = value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCF</td>
<td>Present ex post</td>
<td>Future, starting during next exercise (present excluded)</td>
</tr>
<tr>
<td></td>
<td>Expected value in a linear scenario</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td></td>
</tr>
<tr>
<td>Real Option</td>
<td>Present ex post</td>
<td>Future, starting during next exercise (present excluded)</td>
</tr>
<tr>
<td></td>
<td>Expected value in a flexible scenario</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td></td>
</tr>
</tbody>
</table>
Finally, those differentiations allow to draw a Porphyry tree sketching the different methods:

**Figure 4: Porphyry tree embedding some IP methods**

**Conclusion**

This article has revisited the measurement/evaluation issue by mobilizing the advances in logics brought forward by Ancient Greeks and early French philosophers, especially during the famous Middle-Age universals problem. As many debate, the measurement issue seems to be undecided. It is with the fascinating methodological contributions of Bergson and his follower that we attempt to shed new light in the debate. Following Bergson, we pose the problem with a different approach and are able to identify the possible existence of a false problem; following Deleuze, and the works of Porphyry; we suggest a tree-shaped map of evaluation methodologies. For convenience and to address specific issues, we focus on IP/
patents. The contribution of the present research grounds on the novel problematization it suggests. It is also a pioneer test of Bergson's methodology and Deleuze's cartography in accounting. Incidentally, this piece of work can also help understanding a lasting French stance rooted in Middle Ages as the result of a long lasting and deep philosophical thinking. Further research paths will deepen the approach by carefully studying all possible measurement candidates. The theoretical background can also be strengthen in mobilizing Niklas Luhmann's theory of social systems, as it seems to be in accordance with Bergson’s and Deleuze’s notion of time and could become a perfectly logical extension of the work of theses philosophers to be enclosed in a single consistent framework.
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