The Central Role of Law as a Meta Method in Creativity and Entrepreneurship[[1]](#footnote-2)†

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Introduction

A core theme of traditional intellectual property (IP) law, policy, and scholarship is its focus on the role of IP as an incentive for the creation of inventions and artistic works. However, this story has never made much sense as many scientists, technologists, artists, and artisans create for purposes other than the IP rights they may receive. But it also belies an unfortunate fixation on *artifacts* as the locus of human ingenuity. This paper proposes that instead it is the *methods* of innovation that are the true locus of human progress.

From an historical perspective, one finds that the Scientific Revolution was a revolution in methods of inquiry, just as the Renaissance was a revolution in methods of artistic and artisanal activities. In fact, these overlapping pivotal developments in Western history now seem to be largely the result of a fruitful cross-pollination of methods from different fields (art utilizing developments in math and science and vice versa). The innovation did not stop with methods of direct production of artistic, artisanal, scientific, or technological works however. Perhaps most important from a long term perspective, the revolution in methods of the Renaissance and Early Modern periods also generated “meta methods” to create a supportive infrastructure for not only the creation of these kinds of new works and artifacts, but also for the successful development and dissemination/distribution of useful or usable embodiments of them. Thus this period saw the creation of modern patent and copyright systems, as well as new business laws supporting limited partnerships and corporations for risky, capital intensive ventures.

This paper theorizes that the true genius of such law based meta methods is that they can support an ongoing evolution of human innovation and its exploitation, without being tied to any particular innovation. In other words, they implicitly employ what today we would deem an evolutionary perspective that sees innovation as a method to develop artifacts that are suitable for a certain set of background conditions at a given time. When the background changes, the artifacts likely must too. Accordingly, an obsessive focus on “great works” – artifacts that stand the test of time – has obscured the proper role for innovation methods and meta methods. At the same time, some of the most contentious issues in IP today involve exclusive rights to lower levels of these methods such as business and tax method patents.

Part I establishes the concepts of “methods” and “meta methods” as used in this paper by examining the revolution in creative methods that arguably was the heart of the rise of mercantilism, the Renaissance and the Scientific Revolution in the West. Part II then explores innovation in law based meta methods that were directed to creativity and entrepreneurship during this same historical period, with special focus on patent, copyright, and business law systems. Part III then concludes by theorizing that the emerging IP and business law systems of the early modern period are best seen as incentives for the successful *completion* of creative entrepreneurial ventures – by which I mean the ultimate delivery to the public of useable embodiments or expressions of knowledge/ideas, artifacts, or profit. Along the way the paper also suggests that: i) one downside to this otherwise successful incentive system has been the fetishization of the resultant articles themselves, at the expense of proper focus on the system’s effects on methods; and ii) these creativity and entrepreneurship focused meta methods of law should be viewed as themselves meta methods of creativity and entrepreneurship – not simply as “law” – and thus properly the object of as much innovation as the actual “applied” methods in creativity and entrepreneurship.

I. Methods, Meta Methods and the Artistic, Scientific, and Industrial Revolutions in the West

Historical scholarship over recent decades has increasingly cast light on the so-called “Dark Ages” and “Medieval Period” of European history – from roughly the fall of Rome in the seventh century C.E. to the Renaissance beginning in the fifteenth century. Previously, this era was portrayed as one of chaos and little to no progress in human intellectual endeavors. However, it is now commonly held that the extreme chaos and lack of progress may have only lasted a few hundred years at most. By the thirteenth century C.E., European universities such as Oxford, Padua, and Paris had been established. At first, scholars there drew mainly upon the rediscovery of Aristotle, Plato and other classical Greek philosophers. These texts re-entered European centers of learning primarily from Arab and Islamic scholars who not only had kept the texts safe (after receiving them from Greek and Roman scholars of antiquity), but also had greatly expanded on the knowledge and methods of inquiry contained within. Despite the Islamic contribution to expanding the bases of knowledge pioneered by the Greeks, the early European “schoolmen” tended to view the texts of the ancients as a kind of scripture that needed to be parsed and followed, much like theological or rabbinical studies of the Bible and Torah, respectively. This first period of the reintroduction of classical texts from antiquity into the West is often referred to as the Scholastic Period. While some establish the Scholastic Period as early as the turn of the first millennium, the major reintroduction of ancient Greek texts did not occur until the thirteenth century. Thus, this paper adopts the thirteenth century as both the beginning of the Scholastic Period and the beginning of the history relevant to the topics covered herein.

While the schoolmen and the Scholastic Period are generally criticized for the development of a natural philosophy quite divorced from nature, in fact some of the earliest schoolmen were quite interested in creating new empirical methods. Roger Bacon (1214/1220-1292), for example, has been claimed by some as one of the earliest contributors to the modern “scientific method” – well ahead of the formal “Scientific Revolution” of the seventeenth century.[[3]](#footnote-4) Others contest the characterization of his empirical and methodological contributions as modern or even proto-modern, but still acknowledge that he pushed the boundaries of the text-bound conventions of other Scholastics.[[4]](#footnote-5) Thus, regardless of how “modern” Bacon and other progressive Scholastics may have actually been, it is clear that the reintroduction of the texts of classical antiquity had a profound effect on Western scholars. Further, the nature of the re-introduction – via Islamic scholars who had added substantial knowledge and methods to the trove of ancient wisdom – meant that the West also had to assimilate the progress achieved by the flowering of high Islamic learning and culture. Thus, the commentary on Aristotle and other Greek philosophers by Avicenna, Averroes, and al-Farabi became as much an object of study as the original texts themselves.[[5]](#footnote-6) Given the vastness of the written materials being transmitted to the West in the thirteenth century, it may be no surprise that European scholars focused primarily on digesting them in this period, rather than spending significant time reaching outside or beyond them.

Accordingly, one could see the transmission of these texts and commentary, and their subsequent analysis by European scholars, as the first step in triggering the major developments in the arts, sciences, technologies, and laws of Europe that would follow in the sequential Renaissance (artistic revolution), Scientific Revolution, and Industrial Revolution. Thus, the Renaissance began in Italy in the late fourteenth or early fifteenth century – essentially following an initial century of assimilation of the texts and commentary – and continued into the seventeenth century. The Renaissance was followed by the Scientific Revolution, stretching from the mid-seventeenth century through the eighteenth century. Finally, the Industrial Revolution commenced roughly in the late eighteenth century and continued through the nineteenth century into the early twentieth century.

While the goal of the Scholastics was to achieve pure knowledge of the perfect and eternal (the end of natural philosophy), their attempts to use and understand the wealth of texts and commentaries transmitted from the Islamic world sparked an intense battle over methods to do so. Further, because the Scholastics were looking for knowledge of the perfect and eternal – the true nature of things in an almost Platonic sense – they were intent on distinguishing their methods from those of mere artisans or empiricists. Accordingly, one of the foremost Italian Scholastic Aristotelians, Giacomo (or Iacopo) Zabarella, focused much of his work on distinguishing between the arts and sciences, overall, and among the various arts, and the various sciences, based on the methods and ends of each. Central for the themes in this paper, one current Zabarella scholar sums up Zabarella’s positions on the arts and sciences this way:

[For Zabarella,] [s]cience deals with what already exists, but art is concerned with creation. The subject-matter of a science is immutable, but the subject-matter of an art is the formation of things as yet non-existent, but which can be made by human being[s]. The contemplative philosopher is not interested in initiating anything, but rather wants to comprehend and arrange the forms of existing, eternal things. Moreover, the ultimate purpose of the contemplative science is the pursuit of knowledge for its own sake, but in the productive arts the end-result is an actual product.[[6]](#footnote-7)

This clear distinction between the arts and sciences will become highly relevant in Part II when we consider the rise of patent and copyright systems. However, first we must consider the developments in mercantile, artistic, and artisanal methods in the Renaissance and the impacts they had on the rise of the West.

As a preliminary matter, it is critical to point out that this paper uses the term “arts” in its older traditional sense: sets of methods or craft that can be employed to produce change in the world. Thus, like Zabarella’s understanding of it, “the arts” encompass any creative activities or crafts that produce new artifacts or effects. Thus, there are the martial arts, healing arts, decorative arts, and even the liberal arts (rhetoric, grammar, logic, arithmetic, geometry, astronomy, and music). Most critically, “the arts” as used in this paper, is *not* limited to the fine or decorative arts, nor incorporates any sense of “self-expression” as a necessary component thereof. Historical scholarship – particularly in art history – has shown these sensibilities to be uniquely modern, arising after the humanist movement and Enlightenment era.[[7]](#footnote-8) As opposed to the sciences, the arts had continued progressing, to some degree, throughout much of the medieval period. However, they began to progress markedly faster in European trading centers such as Venice and Florence as commercial trade itself expanded at the end of the high medieval and Scholastic Period and beginning of the Renaissance. This expanded trade brought new ideas, devices, and crafts to these cities that had a dramatic effect on the arts there.

It was also these increased trade relationships with the Islamic world that helped re-introduce the texts of classical antiquity discussed above. But the spheres of the academics and Scholastics, on the one hand, and the merchants and artisans, on the other, did not overlap much. Accordingly, the arts, on the one hand, and the sciences and natural philosophy, on the other, were held to be almost entirely unrelated domains, each with its own methods and ends. Thus, Zabarella focused much of his attention on placing medicine within the productive arts – graciously conceding it to be the “noblest art”, but an art nonetheless. Why? Because, it had a productive end – diagnosis and treatment – that effected change in the world, rather than a contemplative end of simply increasing our knowledge of the perfect and eternal aspects of the world. This requires a bit of explication for the modern “science-based” worldview. In the primarily Aristotelian, pre-Copernican, worldview, there was indeed a perfect and eternally unchanging sphere – largely that of the supra lunar universe (thus including the heavens). This was contrasted with an imperfect and changing sphere that is the stuff of normal embodied human experience – that of the sub lunar realm encompassing the known world on Earth. But because humans were believed to have components of each – crudely and imprecisely put as the body for the sub lunar realm and the soul for the supra lunar realm – then the study of humans could be both about their changeable bodies and their unchanging souls. The study of the changeable component was largely relegated to the arts – especially if its end was to diagnose and treat illness (thus not only to study, but also effect, change) – while the study of the unchanging component was properly part of the sciences and/or (natural) philosophy.[[8]](#footnote-9)

The remainder of this Part will give a rough schematic for the differences among methods and meta methods in the key different spheres of: i) the sciences/natural philosophy; ii) the arts; and iii) commerce.[[9]](#footnote-10) Arguably commerce developed faster first, and thus spurred developments in the others, as discussed above. At the same time, many historians have made much of the perhaps regrettable place that warfare – and thus the martial arts, including military engineering[[10]](#footnote-11) – held in spurring developments in engineering and the arts.[[11]](#footnote-12) Further, at least some of the reintroduction of the texts of Greek and Roman antiquity to the West was as a result of the Crusades and ongoing skirmishes between Christianity and the Islamic world. Nonetheless, because the martial arts were themselves part of the arts, the methods and meta methods of commerce will be treated separately and first.

In commerce, the most specific applied methods were things like how to outfit a ship for a trading voyage, how to barter for the actual trades, how to preserve perishable trading items, and how to defend if attacked by competitors or pirates. But the savviest merchants, of course, took a more strategic approach to these specific commercial activities. Thus, they also employed meta methods such as bookkeeping to better track their spending and earning in their commercial activities. For example, the earliest confirmed description of a system of double entry bookkeeping is attributed to Fra Luca Pacioli in 1494.[[12]](#footnote-13) However, Pacioli only seemed to have been cataloguing and formalizing developments that had accreted over time. Further the introduction into Europe of the so-called “Arabic numerals” (our conventional modern European digits of 0 1 2 3 4 5 6 7 8 9)[[13]](#footnote-14) and the greatly eased and enhanced mathematical manipulations they allowed (e.g., division) only took root among scholars beginning with Leonardo of Pisa (Fibonacci) in the thirteenth century, and then took a couple of centuries beyond that to enter common use by merchants.[[14]](#footnote-15)

This then introduces the notion that there should properly be “methods”, “meta methods”, “meta meta methods” and so on, capturing the notion of multiple higher and lower orders of methods. I currently do not have a convention for “ranking” these different orders of methods, despite the fact that using additional “meta” prefixes is clearly an unworkable system. In the case of commerce, this can play out for math-based commercial functions in ascending order from the most specific to the most abstract such as: i) executing the trade and exchanged a fixed amount of valuable items (goods, currency, precious metals, etc); ii) measuring/quantifying valuable objects to determine their exact value; iii) making calculations to add, subtract, multiply, divide the valuable objects to be traded for purposes of equating/rationalizing them to achieve the desired “equal” trade; iv) recording the trade in precise quantified terms for systematic bookkeeping; v) analyzing bookkeeping records to determine the profit or loss from accounts over a given time period; vi) planning for new acquisitions and trades based on analysis of past performance; and vii) devising new systems of bookkeeping, measurements, and calculations (including new algorithms) to facilitate all of the preceding. In this example, “executing the trade” is the most specific, and lowest order, method because it depends entirely on the actual transaction at hand. “Devising new systems of bookkeeping, etc.” is the most general, and highest order, method because methods of bookkeeping (at least at the level of “double entry bookkeeping”) are generally applicable across all specific transactions, and thus not dependent upon the particulars of the trade. Of course, there can be specific bookkeeping methods within the general form of double entry bookkeeping that are tailored to specific kinds or classes of transactions. But this simply reinforces the point about different orders of methods: the more tailored or specific the method to actual transactions, the lower order the method.

The exercise of the preceding paragraph can also be repeated for the different specific aspects of commerce and trade, such as those given further above. “Outfitting a ship for a trading voyage” thus can be schematized from the specific methods of, say, loading food for the crew to start a particular voyage, to the general methods of estimating and calculating how much provisions a trading voyage would require. Even beyond this, then, would be methods of working with multiple variables (e.g., size of ship/cargo hold, distance to destinations/provisioning points, length of time to elapse between provisioning points, cash or liquid assets on hand to buy provisions) to determine how to increase the probability of a profitable trade voyage. Further, the fields from which the highest order meta methods of commerce could be pulled were manifold: astronomy for navigation; mathematics and geometry for all manner of transactional and engineering issues associated with commerce; etc.

Commerce also gets first attention in this paper, because it is the field of human endeavor most closely associated, overall, with entrepreneurship. The term “entrepreneur” originates from Old French “entreprendre,” meaning “to undertake.”[[15]](#footnote-16) Obsolete French forms include “entreprennoure” and “entreprenour” which are traced back to at least as early as 1475 and 1485, respectively. The Old French “entreprendre” gave rise to both the Middle French “entrepreneur” and “enterprise,” which in turn were both transmitted to Middle English in the late fifteenth century. However, neither appears to have become firmly entrenched in the English language until much later. One possible reason for this may be evidenced in the later English translation of *Essai sur la nature du commerce en général* (*Essay on the Nature of Commerce in General*), the 1755 path-breaking economic work by Richard Cantillon in which the term “entrepreneur” was frequently translated as “undertaker.”[[16]](#footnote-17) Thus, while the term “entrepreneur” may not have taken root in English until the 1800s, the concept seems to have existed in England, France and elsewhere from a relatively early period.[[17]](#footnote-18)

However, whatever the actual timeline of the development of the term “entrepreneur,” the activities that might be deemed “entrepreneurial” developed on their own timelines. Some current entrepreneurship scholars postulate that entrepreneurship – which they define as “discovery, evaluation, and utilization of future goods and services”[[18]](#footnote-19) – has existed at least since ancient Rome. They adopt Herbert and Link’s assertion that the success of entrepreneurial activities in ancient and medieval times was contingent on overcoming risk and institutional constraints.[[19]](#footnote-20)

By 50 BCE, they assert that entrepreneurship in Rome was generally a low prestige activity engaged in by former slaves and other freed men. By contrast, the dominant means of wealth accumulation for anyone with prestige were threefold: i) rents from land ownership; ii) usury; and iii) political payments. In the early middle ages (500-1000 CE), the authors argue that entrepreneurship took the form of pre-emptive military activity and warfare – giving new meaning to the term “hostile takeover,” I suppose. Other forms of entrepreneurship basically revolved around this warfare based environment leading to innovation in military armaments and supplies. This goes hand in hand with the discussion above regarding warfare as a driver of artisanal innovation. However, in the later middle ages (1000-1500 CE), the influence of the church reduced warfare, according to the authors,[[20]](#footnote-21) and more constructive activities such as architecture, engineering, and farming became new foci of entrepreneurship.[[21]](#footnote-22) This then set the stage for increased trade and a merchant class. Further, as this period wore on and the church pronounced ancient practices such as tax farming, usury, and lending as damnable offenses, three categories of “honorable” entrepreneurial merchants arose: x) importers-exporters (mercantiarum apportatores); y) storekeepers (mercantiarum conservatores); and z) manufacturers (mercantiarum immitatores seu melioratores). Critically, this period also saw the rise of specialized knowledge and technical innovation as a main avenue for entrepreneurship. While the authors do not mention it, the creation of the first patent law in Venice in the 1400s certainly fits in well with the story they are developing, especially as they emphasize how a combination of social mores, laws/regulations, and institutions continually shape the pathways of entrepreneurship for any given society in time. This part of the story will be discussed in more detail in the next Part.

The modern period that began roughly around the sixteenth century established the experiential or skill-based knowledge and innovation model for contemporary entrepreneurship according to the authors. Artisans and merchants continued to rise in prominence. However, they and their entrepreneurial activities represented only a small sliver of the overall population. Nonetheless, the rise of this “creative class”[[22]](#footnote-23) would have disproportional effects on the change of European society from one based almost exclusively on agrarianism and land ownership into one based on manufacture and trade in the modern period. With this thumbnail sketch of methods and meta methods in commerce and entrepreneurship completed, we now turn to methods and meta methods in the arts.

Just as the influx of learning, crafts, and devices brought by increased stability and trade in late medieval Europe had spurred merchants and entrepreneurs to new ventures and use of meta methods to increase their profits, this same influx triggered major developments in the arts. from weaponry, to civil engineering, to the artisanal trades (e.g., glass blowing, blacksmithing), to the decorative arts. The result of this influx and developments was the Renaissance, beginning in Italy (which not coincidentally was the locus of the bulk of increased trade relations with other parts of the world) and spreading through Europe over the period from the mid fifteenth century to the beginning of the seventeenth century. While it had been traditionally thought that this flowering of all manner of innovation across the arts was either simply a culmination of smaller incremental advances, or just a natural assimilation of and response to the influx of innovations from the East, a number of scholars now believe that the dramatic rise in quality of artisanal products was largely due to the exploitation of developments in the more academic arts of mathematics, geometry, and some of the sciences by sophisticated artisans.

A prime example usually given is Leonardo da Vinci, living and working in Florence, Milan, Rome, and ultimately Cloux (France) during the peak of the Renaissance in the late fifteenth and early sixteenth century. His Mona Lisa and other renowned paintings have now been shown to have been as much exercises in showcasing new techniques in painting based on advances in other arts and sciences, as they were aesthetic artistic expressions. In particular, da Vinci was able to bring a dramatic new realism to his paintings by using mathematical innovations that allowed him to help pioneer the use of perspective to give his paintings depth and correct proportions, as well as innovations in optics to give them more realistic colors and shadowing.[[23]](#footnote-24) Interestingly, he was also a student of Pacioli, the scholar who formalized double entry bookkeeping, as mentioned above. His mathematical and scientific studies also informed his myriad inventions, military machines, and other artistic works. However, above all, he was an innovator in methods. While others had tried to achieve realistic perspective in drawings and paintings, da Vinci was the first to develop a method that actually worked. He also developed new methods in creating pigments and painting techniques. In other fields such as anatomy and cartography, da Vinci also excelled because of his invention of successful new methods. Following him, Michelangelo and Raphael also used innovative methods based on mathematical and scientific advances to achieve their masterworks. In fact, Michelangelo received a baccalaureate degree in mathematics from the University of Florence.

But the use of math and the emerging sciences was not limited, of course, to the decorative arts. Rather, the Renaissance was a period that saw the groundwork of the coming Scientific Revolution applied to all manner of productive arts, such as shipbuilding, navigation, architecture, etc. It is worth noting that Johannes Gutenberg named his then secret project to create moveable type “art and enterprise”, as he was soliciting investors to fund it in the early fifteenth century. Similarly, despite current sensibilities that separate the “artiste” from base commercial motivations, the artists/artisans of the Renaissance appear to have been highly cognizant of their role as creators of artifacts for patrons and customers. They were engaged in what were considered trades and not as “artistes” aloof from and contemptuous of the commercial world around them, engaging in free spirited “self expression”. Even da Vinci was essentially a master multipurpose tradesman, and that was his value across Italy and France. To the extent that he or other artists/artisans were seeking to achieve something with a “higher purpose”, that would be done either by employing their arts in service to the Church or by attempting to engage in “scientific” inquiry of the kind that academic natural philosophers like Zabarella undertook. However, the sort of “scientific” inquiry that da Vinci undertook was really more of a combination of observation based natural history and taxonomy (e.g., his work dissecting and drawing the organs of animals) and early technological engineering that was based on his application of natural philosophy and academic arts and sciences developed principles to specific engineering problems (e.g., his military and flying machines). The conflation of “technology” – the application of true scientific principles to the arts to generate more successful practical applications and solutions – with “science” hence begins in some ways with da Vinci – and most importantly by many who study him and his work today – and only accelerates through the Scientific and Industrial Revolutions.

Despite, or because of this, the arts of the Renaissance provide prime examples of the development of methods and multiple orders of meta methods to advance them. To illustrate using an example from the decorative arts, a painter’s methods in completing a painting ranging from most specific to most general could be as follows: i) apply paint to a canvas; ii) mix pigments to make a range of colored paints; iii) use geometrical models to incorporate proper perspective in paintings; and iv) use mathematical principles such as the “golden mean” or “golden section” to achieve aesthetic harmony in the composition of paintings. Note that, this sounds “backwards”, but only if perceived as a chronological matter. In most fields, the practice of the field proceeds from the general to the specific as far as planning and then execution of the given work. The theory of the field, by contrast, is concerned with developing and analyzing the methods and meta methods of the field, with the hopes of improving upon them.

To round out this first Part, we now turn to the development of methods and meta methods in the sciences. While the term “science” was used even before the Scientific Revolution of the seventeenth century, it was not fully conceptualized as we would use it today until that time. In fact, stepping back to Zabarella once again, we find that the quest for a fruitful method of inquiry that would lead to certain knowledge – as the hallmark of a “science” – was the driving force in late medieval and Renaissance work in natural philosophy. The Scholastics and other academic philosophers were not much interested in the contingent skills and knowledge of the artisan. This kind of knowledge was uncertain and largely came from trial and error, with no certainty that the repeated success of practices based on this knowledge would continue to be successful. In other words, “empirical” or induction based studies that simply showed that something “worked” time and again did not really prove anything: the success could be due to a changeable background condition which, when later changed, would result in the partial or total failure of the practice. This is admittedly in tension with the heavily empirical and inductive tilt to much of contemporary science practice. The focus on today’s gold standard of replication of a researcher’s research results, thus, would not have done much to impress Zabarella or other natural philosophers of the Scholastic and Renaissance periods. Instead, they wanted certainty and deductive proof similar to that available in the *ordo geometricus* as established by Euclid in *The Elements*. This tension, in fact, then explains much of the conflict and debate over whether Zabarella in fact devised the hypothetico-deductive “scientific method” ahead of his student, Galileo Galilei. As will be seen below, while Zabarella’s *regressus* is quite similar to the hypothetico-deductive system at an abstract level, it did not incorporate empirical evidence or formal experiments to determine the validity of the proposed hypothetical natural law of effects that must then follow necessarily from it (to be susceptible to being deduced from the “law”).

At the beginning of the twentieth century, the historian of philosophy Ernst Cassirer suggested that a Renaissance method of scientific inquiry called “*regressus*” provided a clear link between the scientific methodologies of traditional Aristotelianism and the Scientific Revolution of the seventeenth century. The *regressus* was developed over the span of nearly three hundred years by physicians and logicians at the University of Padua in Italy. Traced back to the writings of Pietro d'Abano (c.1310), the method received its fullest and most sophisticated treatment by Zabarella at the close of the sixteenth century. The method of *regressus* is basically a single process which combines resolutive and compositive phases of inquiry. In the Aristotelian tradition, at least four separate methods of inquiry were commonly considered: division, definition, resolution, and composition. These methods were employed independently of each other, with philosophers debating over when and where each should be invoked. The method of division can be traced to Plato, and involves ascertaining the status of the object under inquiry *vis a vis* some clearly dichotomous distinctions such as “living/non-living” or “material/immaterial.” The method of definition relies on explicating the definition of an object in an effort to get at its essential properties. A resolutive method traces observed phenomena back through their causes to the first principles of the particular subject matter under consideration. A compositive method begins with the first principles of a subject, and then proceeds to deduce effects (including observed phenomena) from them. Because the individual methods had often proven unsatisfactory in the quest for insensible causes of effects, as well as in the case of ascertaining with certainty the necessary underlying connections between sensible objects, Paduan physicians and philosophers such as d'Abano and Zabarella proposed a method which combined a resolutive and a compositive phase into one process of inquiry. The method proceeded by employing a resolutive phase first to analyze an observed effect. After possible causes were determined by this phase, a compositive phase followed where a (syllogistic) demonstration of the effect from the alleged cause was attempted.

The difference between the pre-*regressus* Aristotelian methods and *regressus* theory lies in the combination of traditional methods into a meta-method. Arguably, this development – at least as embodied at its peak in Zabarella's doctrine – represented a conceptually-viable meta method that required only a commitment to mathematical terms as the language of its syllogisms and an increased idealization of nature (e.g. "perfectly round ball bearings rolling on perfectly smooth, frictionless surfaces") to be transformed into the methods of Galileo, and, by extension, those of the Scientific Revolution. Furthermore, there is a parallel to the Aristotelian resolutive and compositive methods of inquiry in the methods of analysis and synthesis (respectively) used in classical geometry. This similarity is important because the model of certain knowledge frequently cited by early scientists was the *ordo geometricus* and so any connection to that system would bode well for a proposed new method of inquiry in natural philosophy and the emerging sciences. Additionally, there may have been a relationship between the early chemical/alchemical processes of analysis and synthesis and the resolutive and compositive phases of *regressus* (again, respectively). In particular, there evolved a combined process of analysis and synthesis in the emerging chemistry of the sixteenth and seventeenth centuries. It is especially interesting to note that there was a strong medical chemistry tradition which included figures such as Pietro d'Abano and Agostino Nifo,[[24]](#footnote-25) both of whom played an important role in the development of *regressus* theory. A further study of the origins of the combined analytic/synthetic method in early chemistry and alchemy might reveal it to be an application of *regressus* theory, or perhaps even an inspiration for *regressus*.

Thus, the foregoing gives one illustrative example of methods and meta methods right at the heart of the origins of modern scientific methods. The actual specific actions were taken by resolutive or compositive methods, and indeed by even more narrowly tailored methods applied to specific subject matter areas. But the end or direction of employing these specific methods was organized by the meta method of *regressus*. Similar to meta methods in commerce and the arts, the meta method of *regressus* held out the promise of a more abstract generally applicable method that could increase the “profitability” of the undertaking of inquiry into the insensible causes of effects in the world.

In sum, the Renaissance and Scientific Revolution can arguably be thought of as revolutions in meta methods. This was both as to the creation of meta methods in the first place, as well as the rapid advancement and refinement of them as the period wore on. Accordingly, it is a central theme of this paper is that innovation can and should happen at all levels of methods and meta methods. However, the nature of creativity that can generate innovation at different levels may be different, or at least the incentives and structures to encourage it may well need to be different. The challenge is that without an approach or order to the different levels of methods and meta methods it is hard to even begin to have any kind of meaningful discussion of systematic attempts to incentivize useful innovation in meta methods in particular. Not surprisingly, what we currently have are ad hoc approaches to the methods of a particular field, with usually only an inchoate sense of meta methods. What is needed is a systematic approach to innovation in methods and meta methods. This paper begins part of that process by advancing a theory of law’s role as meta methods in creative fields such as commerce, the arts, and the sciences.

II. The Changing Role of Law as a Meta Method in the Arts, Sciences, and Commerce

Just as the expanding practice of trade prompted merchants to seek more sophisticated financial and mathematics-based methods and meta methods for improving their odds of profitability, they also began needing better organizational and structural mechanisms. This was especially true as they began requiring larger capital investments than one or a few merchants could pool together. However, once additional investors were brought in – especially if they were passive investors who would not control the venture – standard investment protection issues arose. What today we would call issues of voice, information, and exit became new problems not previously faced by merchants. Further, the larger the venture, and the more people employed or associated with it, the more complicated the legal arrangements among them all. One can essentially draw a straight line from the issues emerging with these large ventures such as the Dutch East India Company and the British East India Company at the turn of the seventeenth century all the way to contemporary corporations and securities law.

However, even before the rise of these first “mega companies,” Italian merchants were already facing issues with coordinating trading voyages on a more limited scale. Thus, our story once again starts in fifteenth century Italy. Venetian traders were quite active around the Mediterranean and needed a means to finance and staff trade voyages. The development of medieval guilds for artisans was especially strong in Italy, but there also developed merchant guilds for similar reasons – mutual protection, cartel-like exclusion of competitors outside the guild, sharing of valuable knowledge and skills, pooling of resources, and the amassing of economic power to offset encroachments by sovereigns and strong men. The core to guilds, however, were the legal and quasi-legal contracts and obligations that guild members entered into with each other and the guild.

Yet the merchants still needed financiers outside of the guilds. Accordingly, legal mechanisms for pooling capital, sharing profits/losses, and allocating control were needed. The response in various Italian city-states was the general partnership, arising in the late medieval period.[[25]](#footnote-26) This is then the first legal meta method we will consider. The legal construct of a partnership obviously does not execute any particular trade, nor is it even a middle level method or low meta method that is directed at some general level across a set of trades. However, like the commercial meta method of double entry bookkeeping, arising again with Pacioli also in Italy in the fifteenth century, the legal construct of general partnerships can be seen as a commercial meta method that applies across a wide range of merchant trade situations, and increases the likelihood of profitable outcomes.

However, the general partnership did not serve merchants well as they developed other kinds of relationships over time. In particular, older wealthy merchants wanted to act as financiers and not participate in the actual voyages. But since they would be able to exercise much control on the venture, they wanted to be able to limit their losses and liability. They also were concerned about the potential information asymmetries and agency problems arising from such an arrangement. Accordingly, the ever resourceful Italians created the “*commenda*” form which was essentially like a modern limited partnership in the late medieval period.[[26]](#footnote-27) This allowed the older financier merchants to invest limited amounts, and be liable only for the amount they had invested. In a prime example for this paper, there is evidence that the extent of trade in the northern Italian cities developed hand in hand. At the same time, the limited partnership form was adopted across Europe but not in England. Further corroborating the story of the role of *commenda* style limited partnership forms in developing advanced trade: countries such as the Netherlands that allowed *commenda* arrangements saw their trade advance quickly as more and larger ventures were formed; while countries such as England that did not allow them saw their trade growth stunted.

By the beginning of the 1600s, the largest Dutch trading partnerships merged into a single behemoth (for the time) entity, the Dutch East India Company (VOC). This entity was really a cartel or partnership of partnerships.[[27]](#footnote-28) But it set the stage for the large trading companies that would begin doing economic battle in the seventeenth century. As a partnership, though, VOC was really a private ordering affair. In other words, like the distinction between general partnerships today that are formed solely by the actions and contracts of the partners and corporations that can only be formed by action of the state, VOC only existed to the extent that its contracts were valid and enforceable. This is not to denigrate either this form of business entity, nor private ordering generally – I am a big fan of the importance and flexibility of private ordering in entrepreneurial ventures. Rather the point is made to introduce the idea that there are three modes of how law can come to impact the creative entrepreneurial ventures at the center of this paper: i) actions by a sovereign or government executive; ii) rights and procedures established by a legislative body; and iii) private ordering. These modes could be thought of themselves as a class of meta methods – even above meta methods like the *commenda* style limited partnership – in the way law can be part of creativity and entrepreneurship. We will return to this point repeatedly in this Part.

In a fascinating twist, British common law’s disfavoring of the *commenda* style partnership form appears to have led merchants in the country to leapfrog over their European counterparts by creating a hybrid regulated corporation-joint stock company.[[28]](#footnote-29) The regulated corporation was a version of the old style of British corporation that could only be created by charter of the Crown. While many of these old style corporations were ecclesiastical or educational in purpose, one strain was directed to merchants and served as a kind of formally chartered version of the Italian merchant guilds. The regulated corporation as chartered for merchants came into use in England at the very beginning of the sixteenth century. Relevant to the discussion of patents below, the merchant oriented regulated corporations also were generally granted exclusive trade rights in some subject matter (e.g., wool) and with some geographic zone (e.g., Flanders). As opposed to the private ordering *commenda* partnership form, however, the British regulated corporations were part of the class of sovereign or government executive action legal meta methods.

The British East India Company (EIC), formed in 1600, changed all of this however, by mixing a then standard regulated corporation with joint stock.[[29]](#footnote-30) Prior to this, regulated corporation members traded in their own stock and often retained liabilities for losses of the corporation. The EIC royal charter expressly made EIC “one body corporate and politick” with the list of legal personhood rights familiar to us today: the right to sue and be sued, to own and divest property, etc. But this has been taken to mean that EIC effectively granted its members an early version of limited liability, even though that doctrine did not formally arise until later. The argument was that if EIC were truly “one body corporate and politick” with the attributes of legal personhood, then its debts were its own and not those of its members personally. Of course, member funds possessed by EIC could be taken to satisfy debt and other liabilities of EIC, but this would be just as it is in a limited liability situation. The key legal innovation of EIC was that it added a layer of joint stock investment structure over the standard regulated corporation. The distinction between joint stock mechanisms and the stock corporation form is that the joint stock structure is simply a private ordering equity financing mechanism, whereas the true stock corporation has the equity stock defined by statute and/or the corporation’s charter. In the case of EIC, what ended up happening was that a regulated corporation that all and only had 219 members formally listed in its charter, wound up having many more than that as joint stock “adventurers” or investors. At the same time it allowed these non-member investors to have a vote in the “General Court” governance body.

In the end, the corporation was the main way forward for large, risky ventures. Over time, the statutory stock corporation would replace the royally chartered regulated corporation-joint stock hybrid entity in the nineteenth century. At the same time, Britain would eventually also get a statutory limited partnership entity form in 1907. By then, however, the joint stock corporation and later arising free incorporation stock corporation – an entity formed under some version of the British Companies Acts that allowed the formation of corporation upon certain bureaucratic formalities not requiring the charter or consent of the Crown) – had helped Britain attain pre-eminence as a trade and industry economic world power. Along the way, Britain had the honor of employing all three kinds of high level legal meta methods in its entrepreneurial business entity forms: sovereign or government executive grants; rights established by a legislature; and private ordering.

Turning away from business entities as entrepreneurship and creativity meta methods, we return yet again to fifteenth century Italy to look at another critical legal meta method: patents. Well known to students of patent history, the Venetian Senate passed the first formal patent act in the world in 1474. A standard explanation given by scholars is that the Senate wanted to lure in foreign inventors, and the lure of exclusive rights had worked for sovereigns in other kingdoms. There are claims that earlier patents were issued by sovereigns or city-state governments even as early as the thirteenth or fourteenth centuries.[[30]](#footnote-31) But the Venetian Patent Act is billed as the first formal patent system. This all begs the question about what we mean by “patents” and “patent systems.” The standard historical story is that the term “patents” comes from the Latin “litterae patente” – “open letters” or “letters patent” – which simply meant orders from a sovereign that were open to the public (as opposed to sealed closed for designated eyes only).[[31]](#footnote-32) Accordingly, the subject matter of these letters patent could be anything: land, privileges, trade, etc. Within this broad ambit, sovereigns did sometimes issue letters patent for the results of the kinds of inventive activity we today associate with “patents” (and artificially limit that term to today). But those were seen as isolated cases, and were often as much about trade rights, rather than the products or method *per se*.

However in the early fifteenth century both Florence and Venice issued *ad hoc* patents for new inventions such as corn mills and barge hoists. Nothing is really said by scholars as to *why* these grants are given, other than to infer that these were used to lure in skilled craftsmen from outside the city states. But this seems to be based only on a backwards inference from evidence that when England later began issuing patents (following the Italian concept), it did so explicitly to lure Continental craftsmen to England. There are two problems with this inference. First, there is no evidence that the craftsmen receiving the early patents in Florence and Venice were not already in those city states. In fact, in the Florence case, the patentee was Brunelleschi who was a life-long resident of Florence (and architect for the Duomo, the dome on top of the Cathedral of Florence, Santa Maria del Fiore). Second, England clearly lagged the Continent in arts and trade during the Renaissance, while Florence and Italy arguably led Europe in art and trade. Thus, it is perfectly understandable that England would both feel a need to import *any* innovations that were spurring art and trade on the Continent (including legal innovations like a patent system) and to create special incentives to lure Continental artisans from the heart of the Renaissance to a relatively far flung island country with relatively bad weather (compared especially to Italy). Therefore, there is likely a difference explanation for the rise of patents in Italy in the fifteenth century.

The question is heightened when considering the act of the Venetian Senate when it passed its Patent Act of 1474:

WE HAVE among us men of great genius, apt to invent and discover inegnious devices; and in view of the grandeur and virtue of our City, more such men come to us from divers parts. Now if provision were made for the works and devices discovered by such persons, so that others who may see them could not build them and take the inventor’s honor away, more men would then apply their genius, would discover, and would build devices of great utility and benefit to our Commonwealth.

Therefore:

BE IT ENACTED that, by the authority of this Council, every person who shall build any new and ingenious device in this City, not previously made in this Commonwealth, shall give notice of it to the office of our General Welfare Board when it has been reduced to perfection so that it can be used and operated. It being forbidden to every other person in any of our territories and towns to make any further device conforming with and similar to said one, without the consent and license of the author, for the term of 10 years. And if anybody builds it in violation hereof, the aforesaid author and inventor shall be entitled to have him summoned before any magistrate of this City, by which Magistrate the said infringer shall be constrained to pay him hundred ducats; and the device shall be destroyed at once. It being, however, within the power and discretion of the Government, in its activities, to take and use any such device and instrument, with this condition however that no one but the author shall operate it.[[32]](#footnote-33)

The consensus is that this has many of the essential features of modern patent systems (novelty, utility, reduction to practice/perfection, disclosure, scope of patentable subject matter, registration, and fixed term). But there is no more of a compelling story as to why this development occurred than there was for the earlier patents here and in Florence. The British story of luring in foreign craftsmen is no more supported here than the earlier patents because there is nothing in the Act that suggests that purpose or gives special protection to foreigners. In fact, the new and ingenious device had to have been built in Venice. Arguably this could mean the building only – the invention or design could have been elsewhere – but that would be pure conjecture somewhat against the natural reading (at least as it is translated). Notwithstanding this, there is evidence that the Venetian Patent Act was used for both local and foreign inventors, so long as the latter did indeed take up residence in Venice and build the devices there. So the Act clearly worked for the importation purpose as well. But it does not seem to have been solely or even mainly for that purpose. It also appears that the Act was not necessarily drafted to mean novelty in the way we do today. Instead, like other early patent systems, the “novelty” requirement was really as to the locale covered by the patent system. The art could be well known elsewhere, and still be the basis for a patent if it were not already being practiced in Venice.

An early scholar on the Venetian patent system, Giulio Mandich, analyzed the Venetian Patent Act and the patents that preceded it in Florence and Venice and those that followed.[[33]](#footnote-34) He notes that patents could be an incentive to foreign craftsmen and engineers, but notes also the Florentine patent to Brunelleschi and many Venetian patents that were granted to natives. For Mandich, a key clue to the purpose of the Venetian patent system comes from the analysis of applications (called “supplications” in the Venetian system) and grants. The trend he discerned in what seemed to be important to the councils and boards that reviewed the supplications was that it was the *utilization* of the invention that mattered and not just its utility. This is further supported by the limitation that the patent would be lost if not worked within a certain period of time (which is still part of the current Italian patent system). The Venetian Patent Act also contained a government only compulsory license, similar to the U.S. patent and copyright use statute (28 U.S.C. § 1498). This theory of utilization as the key policy goal makes a lot of sense, and is in line with those current scholars who view patents as primarily an incentive of commercialization of the invention.[[34]](#footnote-35) It is also in line with one of the themes of this paper – relevant areas of the law as meta methods for the completion of creative entrepreneurial ventures.

Finally, another scholar of the arts in medieval and Renaissance period, Pamela Long, sees guild craft secrecy and patents as similar means to propertize artisanal knowledge that had long been held as non-proprietary:

Venetian records provide insight into attitudes towards intangible craft property from the point of view of the guild and of the state. Venetians, particularly the Venetian glassworkers, may have been precocious in their view that craft knowledge and inventions constituted property, but they were by no means unique. During these centuries many different crafts and guilds throughout Europe protected craft secrets. The awarding of patents for inventions came to be a widespread practice. Craft secrecy and patents developed as different ways of either protecting craft property or acquiring it. Patents were usually awarded by cities or rulers to people who possessed novel inventions whether or not they themselves had invented them. In exchange, the patentee usually was required to teach the craft to apprentices from that locale. Thus patents were a means by which cities or states acquired new technologies and new craft processes.[[35]](#footnote-36)

I would go farther than Long, though, and posit the rise of patents in the fifteenth century as a means for sovereigns and city-states to control or limit the dangerous (to the sovereign) level of economic and *de facto* political power that craft guilds had secured during the late medieval period. Just as the rise of free, trade-based cities and a merchant and artisan class had threatened the traditional land-owning monarchs and nobility, and helped end the medieval feudal system, the craft and merchant guilds presented a new level of challenge to not only such land-owning rulers, but also the ruling class of the free city-states themselves. Thus, even as the guild forms arose as a means for the emerging free artisan and merchants of the mid to late medieval period to protect themselves from being effectively “recaptured” by the land-owning aristocracy – almost a kind defensive gang or mafia mechanism – the forms proved so successful as to actually threaten the control of the city-states’ rulers.

Central to this power was the strictly policed secrecy of the guild’s craft know-how and show-how. This was the strongest leverage point the guilds had. At its height, it led to the kind secret rituals and cryptic references of guild-based fraternities such as the Freemasons that generate potboiler books and movies to this day about grand schemes and bizarre occult “truths” such as those in “The Da Vinci Code” and “National Treasure.” The city state’s rulers needed a mechanism to counterbalance the strength of the guilds. Artisans were faced with both a carrot and stick from the guilds: if they joined they could learn the highest level of craft in their field and enjoy the income attendant to those in a monopoly position in society; if they did not join they would be cut out of the deep pooled knowledge of the guild, would earn less, and in some cases might not even be allowed to practice the craft/trade at all. This last one arose from the fact that the powerful guilds in some cases, such as in Venice, were able to get quasi-governmental regulator status of certain crafts/trades. My hypothesis is that the rulers of these city-states began realizing that of one of the prime values for the guilds and their members was the potential for monopoly rents, then the state could grant legal monopolies, and thus that patents grew out of the attempt to grant counterbalancing monopolies. Further, the state alone still controlled the police and military forces that could enforce rules, so the state could also offer a real enforcement mechanism to inventors/artisans. The result was a mechanism to essentially bribe artisan inventors to disclose and openly practice their inventions or crafts, rather than relying on secrecy and the guilds.

Of course, this is similar to one of the current proffered justifications for patent systems: without them, inventors would keep their inventions secret and either not practice them at all, or change them so as to practice them under cover and enforcement of trade secrets law. The problem is that few people seem especially persuaded by this justification. It would seem that the limits to practicing all inventions under secrecy are such that many inventors would have to forego exploitation of their invention altogether, else risk losing control of it. But this is a story that is based on where things stand today, with the current trade secrets laws. If one goes back to the late medieval and Renaissance periods and considers the guilds’ impressive ability to control artisanal knowledge, the threat of secrecy in the absence of a counterbalance seems very real indeed. Other than through the use of force, the sovereign was also quite limited in what tools it could use to break knowledge out of the guilds. The use of patents then may well have arisen primarily to bribe artisans to either leave, or stay out of in the first place, the artisanal knowledge black hole of the guilds.

In fact, Long herself recounts the story of Brunelleschi’s Florentine patent in a way that lends support to my conjecture. In his petition for a special privilege or patent (this precedes the passage of even the Venetian Patent Act), he describes himself as “‘a man of the most perspicacious intellect, both of industry, and of admirable invention.”[[36]](#footnote-37) The petition claims a new cargo boat which can haul loads more cheaply than other existing boats. “However, Brunelleschi ‘refuses to make such machine available to the public in order that the fruit of his genius and skill may not be reaped by another without his will and consent.’ If he could enjoy ‘some prerogative’ concerning his invention, he ‘would open up what he is hiding and would disclose it to all.’ . . . Further, he would be motivated ‘to higher pursuits, and would ascend to more subtle investigations.’” Based on this petition, the Florentine government did issue him a special privilege to be the only one to make and use any new kind of boat on the Arno River for period of three years. While this may sound only like an articulation of standard modern patent system rationales, it is critical to know that Brunelleschi was a member of a Florentine guild as well. Long paints him as a “transitional” figure who presages a new era of openness and authorship about key crafts knowledge. To me, the new period of openness likely was made possible by the rapid rise of the patent system that allowed artisan inventors to disclose their invention while still controlling it. The public then got the benefit of the knowledge too, and the artisan could still charge monopoly rents – which could be even more remunerative because presumable they did not have to be split with fellow guild members.

In sum, then the patent system that emerges out of Florence and Venice is a meta method that facilitates the successful public completion of creative entrepreneurial ventures in the arts. It definitely has a policy goal as well – to make more artisanal knowledge open to the public. But it also likely allowed for freer and easier launching and completion of entrepreneurial ventures based on creative innovation because the ventures would not have to be mostly run in secrecy.

The final legal meta method this paper considers is that of copyright. It is both the legal regime that seems most attuned to “creativity” and the one most bastardized from its original form. As Gutenberg’s new moveable type press began making its way across Europe in the fourteenth and fifteenth century, prospective new operators were concerned about whether their investments in building and operating them would be profitable. Their worry was that other printers would set up shop and undercut them. Of course, this can happen in any field of endeavor. The difference for printers was: i) the standard current story of IP protected goods with high initial investment costs but then low marginal production costs and easy copying; and ii) the keen desire of city-states and kingdoms across Europe to have printers operating in their locale. The result was that city states including Venice began issuing printer patents during the same time that the patent system described above got underway. This is not surprising as the printer patent was really just a specific kind of patent. For purposes of this paper, the printer patent can be seen as a lower level of legal meta method than regular patents as the printer patent limited its applicability to printers and no other fields.

However, after the literal and figurative novelty of the new printing presses wore off, and most city states and kingdoms had them operating, the question turned to protections for the continued works or publications being produced by them. It was true that the biggest investment of building the presses was already paid off. But what would cause the printer to set new books and print out sufficient copies, even for works likely not to be very popular? Could new patents be issued? Initially, the answer was yes, at least for “novel” books – meaning those never before commercially printed.[[37]](#footnote-38) But in the early years, this could include even ancient texts, so long as they had only been available in manuscripts before the proposed printing. This was particularly true for early French privileges granted. As to something called “copyright”, the honor again goes to Venice, which issued the first known copyright to Marcus Antonius Sabellicus for his history of Venice in 1486. Of critical importance, these early printer patents, book privileges, and copyrights were rarely protective of “original expression.” Rather they were incentives for authors and printers to spend time and money to print a run of copies of the book. So again we return to the notion of a legal meta method to spur the completion of creative entrepreneurial ventures. Especially on the part of the printer, the venture of printing books was purely a commercial entrepreneurial venture. The writing or manuscript itself would originate for any number of reasons – religious, philosophical, scientific, etc. – but the commercial print run would begin only if a printer thought he could make money off it. Certainly, there could be some charitable minded printers who would cover the costs themselves and distribute the book as a charity. But this would be the exception that proved the rule.

Following these early, roots, the British Stationers Company was chartered by the Crown in 1557, to operate as not only an exclusive printers guild, but also as a means for the Crown to exercise censorship over printed matter in the kingdom. Here, the emphasis was again on the commercial venture of the printers, and not considerations of the “rights” or “ownership” of the author in his original self expression. Only in 1710 would Britain enact the Statute of Anne which at least nominally seemed concerned with authors’ rights. However, even there the impetus seemed to be conflict among publishers, which could be resolved to some degree by vesting the original control and copyright with the author, who could then contractually divest it to one printer or another. This rationale makes further sense when one considers that absent a commercial partner, a copyright does not do an author very much good. Unless he can publish it himself, he will make no money from the copyright protection. At the same time, the Statute of Anne clearly uses as its self contained rationale and incentive for educated men to write useful books. So even at this point the focus was still not on creative free expression. An interesting question beyond the scope of this paper is how copyright got transformed between then and now into a system to protect “original” expression that is often or primarily in the form of self expression that is not particularly “useful” (except in an aesthetic or entertaining way). Notwithstanding this, copyright law today still is as much about structuring rights and relationships to incentive publication and dissemination of the works, rather than about incentivizing creation of the work in the first place. Thus again, the legal meta method is about facilitating the successful completion of a creative entrepreneurial venture.

III. A New Perspective on the Means and End of IP and Business Law

This paper has demonstrated the 1400s to be a pivotal time for the West. Just on the face of the accomplishments as embodied by great works in art, engineering, and early science, as well as feats such as Columbus’ and others’ great voyages of exploration, the period is epochal. But therein lies the challenge presented in this paper – the artifacts and end results of the employment of valuable new methods often eclipse the genius of the methods themselves. This is unfortunate in that innovation in methods is arguably the most important thing we do as humans. Artifacts may be “timeless” in that we can still appreciate them today, but especially in the realm of useful artifacts they are rarely used for very long before becoming museum pieces. They are replaced by new artifacts that are grossly or finely revised for our changing needs. Methods evolve too, but many fundamental ones remain in constant fruitful use centuries after they were developed. The art of using a brush to paint on canvas is largely the same as when it was developed centuries ago, even though none of the original brushes are still in use (as far as I know). In fact, the brushes have undergone some design changes. But even if they had not, or to the extent that contemporary painters still actively use animal hair brushes with original style shapes and binding, the brushes are simply not the very same physical objects originally created back then. Instead the brushes today are replications of the originals. So it is the method of making them that is truly timeless and ongoing. There may be updated versions of the method, but undoubtedly one could still employ the original methods and produce new copies of the brush as an artifact.

Not only were the 1400s a pivotal time for the development of specific applied methods, but they also introduced the true core innovation of meta methods, including legal meta methods. The genius of meta methods is that they can apply across a broader range of activities than lower level specific methods can do. When looked at from a creativity and entrepreneurship perspective, proper meta methods are “technology neutral” in that they can allow for, or even facilitate and encourage, fairly radical changes in specific methods and their produced artifacts. Thus, business law developments such as partnerships, limited partnerships, and corporations all can support a myriad of different kinds of creative entrepreneurial ventures. The key to meta methods is whether they are solutions to problems that cut across a wide range of activities themselves. For business entity law, there was a major problem arising in the 1400s with the capacity of merchants to finance their expensive and risky voyages. This was particularly acute for long voyages to the Americas or Far East. Thus, the story that schoolchildren learn about Columbus canvassing the monarchs of Europe to find a patron willing and able to fund his voyage West to get to the East is quite telling. The point was that even well-off monarchs could not easily fund the voyages. So what hope would mere merchants have? The answer was first the Italian *commenda* style limited partnership, then followed by the joint stock corporation. But these forms were not limited to expensive voyages. Rather they provided a method for structuring all manner of expensive, diffused ownership/investor ventures. In this way the meta method allows for evolution of the artifacts and lower level specific methods. Likewise, the problems posed by too powerful guilds, as well as the need for city states to lure in foreign ideas and artisanal talent, required a solution. That solution was the patent system. Essentially that same patent system is still supporting commercialization, but now of technologies and services that the Renaissance guild members and rulers could scarcely have dreamed. Likewise, copyright arose to incentivize entrepreneurs to set up printing shops to print and distribute useful and interesting printed matter. Today, that system is largely still in place, but now to incentivize a mind boggling array of activities, including movies, music, and digital new media.

Given the centrality of methods in human innovation, it may not be surprising that any hindrance or restrictions on them can be problematic. At the same time, legal meta methods such as the patent system can be used even on meta methods if not otherwise restricted. Thus, I contend that a large part of the reason why business method patents and research tool patents are so contentious is that they are not just patents on methods, but are really patents on meta methods. We do not normally think of this, but only because we fail to appreciate the true centrality of methods and meta methods and have at best an inchoate sense of their ordering or ranking. Some business method patents do indeed just cover specific methods – e.g., the Amazon one-click e-commerce patent – but many others cover meta methods – such as the hub and spoke financial system at the heart of the *State Street* case. Similarly, research tool patents almost always cover meta methods because by definition research tools are things that scientists will use to find other things.

Therefore, what is needed first and foremost is a better account of methods and meta methods in creativity and entrepreneurship. Not necessarily a comprehensive taxonomy that includes all methods and meta methods (clearly an impossible task). But at least a conceptual map of the different classes and ranking of exemplar methods and meta methods. Once this is done, then attention could turn to deciding which classes or levels can properly be restricted or propertized without risking a class error. At the same time, the top to bottom set of methods and meta methods covering a specific art could be analyzed to determine better ways to innovate in the methods and meta methods. For the innovation in methods and meta methods may once again open up broad new vistas of inquiry and discovery, just as the new meta methods of the Renaissance fundamentally changed Europe forever. In conclusion then, this paper is really only the beginning of a major research agenda that I hope to begin undertaking immediately.

1. † © 2008-2009 Sean M. O’Connor. [↑](#footnote-ref-2)
2. ‡ Associate Professor & Director, Graduate Program in IP Law & Policy and Entrepreneurial Law Clinic, University of Washington School of Law, [soconnor@u.washington.edu](mailto:soconnor@u.washington.edu); Of Counsel, Seed IP Law Group, [SeanO@SeedIP.com](mailto:SeanO@SeedIP.com). The author thanks Shubha Ghosh, Jeffrey Lipshaw, and participants in the Creativity, Law & Entrepreneurship workshop co-hosted by INSITE, Global Legal Studies Center, and Institute for Legal Studies at the University of Wisconsin Law School on April 24, 2009. [↑](#footnote-ref-3)
3. *See, e.g.*, “Roger Bacon”, Stanford Encyclopedia of Philosophy *available at* <http://plato.stanford.edu/entries/roger-bacon/> (2007). [↑](#footnote-ref-4)
4. *Id.* [↑](#footnote-ref-5)
5. *See, e.g.*, “Influence of Arabic and Islamic Philosophy on the Latin West”, Stanford Encyclopedia of Philosophy *available at* <http://plato.stanford.edu/entries/arabic-islamic-influence/> (2008). [↑](#footnote-ref-6)
6. “Giacomo Zabarella”, Stanford Encyclopedia of Philosophy (citing Heikki Mikkeli, *The Foundation of an Autonomous Natural Philosophy: Zabarella on the Classifications of Arts and Sciences* in DiLiscia et al., Method and Order in Renaissance Philosophy of Nature: The Aristotle Commentary Tradition (Ashgate Aldershot 1997)). [↑](#footnote-ref-7)
7. [cite] [↑](#footnote-ref-8)
8. However, Zabarella and others do allow for the standard Aristotelian study of natural philosophy, which very much *is* about the changeable sub lunar realm. However, to be properly part of natural philosophy – and thus steer clear of devolving into an art – the study must be about ascertaining essential features of natural types. Thus the philosopher would study (contemplate) what is the essential nature of “dog-ness”, rather than the particular features of specific dogs. [↑](#footnote-ref-9)
9. I have long been troubled as to whether commerce should be seen as part of the arts, or a stand-alone meta class of human activity as a peer of the arts and the sciences. While this distinction may seem a little to fine as to be unimportant, it actually will be shown to be critical later in this paper when considering business method patents. [↑](#footnote-ref-10)
10. “Martial arts” is also a term that has become artificially limited to only a subset of itself in the past century, like “the arts”. Today “martial arts” is often understood to mean hand to hand combat techniques, or those with limited weapons like nunchucks, associated with the Far East, such as karate, Tae Kwon Do, etc. However, the term classically, and more properly, covered all techniques and crafts/engineering associated with deadly combat and warfare, including swordsmanship, archery, catapult building, armory, etc. [↑](#footnote-ref-11)
11. [cite, especially those arguing for the rise of Europe and the West precisely because of the extensive, highly competitive warfare among the fractured system of small kingdoms and city states in Europe from the fall of Rome until the rise of modern nationalism in the nineteenth century; accord da Vinci’s arguably primary value as a military engineer to the Medicis, Sforzas, and later the French] [↑](#footnote-ref-12)
12. In 1494, an Italian monk named Fra Luca Pacioli formalized and catalogued the then-current state of bookkeeping, including a description of early double-entry bookkeeping, in his book *Summa de Arithmetica Geometria Proportioni et Proportioninalita*. *See, generally*, Richard H. Macve, *Pacioli’s Legacy*, in Accounting History From the Renaissance: A Remembrance of Luca Pacioli (T. A. Lee, A. Bishop, and R. H. Parker, *eds.*) (Garland Publishing, Inc. 1996). [↑](#footnote-ref-13)
13. The “Arabic numerals” actually originated with Hindu scholars in what is now India, but were transmitted to the West via Arab/Islamic scholars, hence the misnomer. They are perhaps more properly called “European digits” because the exact forms currently in use in Europe and European based cultures are markedly different from how the numerals would appear in proper Arabic script. [↑](#footnote-ref-14)
14. Kline, Morris, Mathematical Thought From Ancient to Modern Times \_\_ (Oxford University Press \_\_\_\_). [↑](#footnote-ref-15)
15. “Entre” – inter + “prendre” – to take. Oxford English Dictionary Online (2d ed., 1989); Merriam-Webster’s Collegiate Dictionary Online. [↑](#footnote-ref-16)
16. *See generally*, Richard Cantillon, *Essai sur la nature du commerce en général* (ed. and trans. Henry Higgs, London, Macmillan & Co. 1931). [↑](#footnote-ref-17)
17. *See* Patrick J. Murphy et al, *A conceptual history of economic thought*, 12 J. Mgmt. Hist. 16-18 (2006) [hereinafter *History of entrepreneurial thought*]. In some ways, the question is not so much why the French term “entrepreneur” eventually did secure a firm place in the English language, and thus Anglo-American discourse, but rather why “undertaker” fell out of use to denote the role of the entrepreneur. It may be that the term “undertaker” simply became too broad for its own usefulness as its entry in the Oxford English Dictionary lists no fewer than seven separate meanings, many with multiple sub-meanings, and many listed as obsolete. Oxford English Dictionary Online (2d ed. 1989). Oddly, the general connotation of “undertaker” today, at least in the U.S., is limited to funeral arrangers. It would be fascinating to research how this meaning even came about in the first place. Notwithstanding that historical curiosity, it seems clear that the introduction of the term “entrepreneur” did not occur as part of the Norman Conquest, which was the primary point of introduction for many English words of French origin, particularly where those words had an existing Old English counterpart already. [↑](#footnote-ref-18)
18. *Id.* at 13 (following S. Venkataraman, *The distinctive domain of entrepreneurship* in J.A. Katz (ed.) Advances in Entrepreneurship: Firm Emergence and Growth). [↑](#footnote-ref-19)
19. *Id.* (citing R.T. Herbert and A.N. Link, The Entrepreneur (Praeger Publishers, New York 1988). [↑](#footnote-ref-20)
20. I do not think this is supported by the historical record, or at the very least, it is a *relative* reduction in warfare. [↑](#footnote-ref-21)
21. *History of entrepreneurial thought* at 17. [↑](#footnote-ref-22)
22. *See generally*, Florida, Richard, The Creative Class. [↑](#footnote-ref-23)
23. *See, e.g.*, Atalay, Bulent, Math and the Mona Lisa: The Art and Science of Leonardo da Vinci \_\_ (HarperCollins 2004). [↑](#footnote-ref-24)
24. Robert P. Multhauf, The Origins of Chemistry (1966; New York: Franklin Watts, Inc., 1967) 201-246. [↑](#footnote-ref-25)
25. *See* Ron Harris, “The Formation of the East India Company as a Deal Between Entrepreneurs and Outside Investors (working paper on file with author). [↑](#footnote-ref-26)
26. *See id.* [↑](#footnote-ref-27)
27. *See id.* [↑](#footnote-ref-28)
28. *See id*. [↑](#footnote-ref-29)
29. *See id.* [↑](#footnote-ref-30)
30. [cite] [↑](#footnote-ref-31)
31. *See, e.g.*, Christine MacLeod, Inventing the Industrial Revolution: The English Patent System, 1660-1800 (Cambridge University Press, 2002). [↑](#footnote-ref-32)
32. Guilio Mandich, *Venetian Patents (1450-1550)*, 30 Pat. Off. Soc’y 166, 176-77 (1948). [↑](#footnote-ref-33)
33. *Id.* [↑](#footnote-ref-34)
34. cite Kieff et al. [↑](#footnote-ref-35)
35. Long, Pamela, Openness, Secrecy, Authorship: Technical Arts and the Culture of Knowledge from Antiquity to the Renaissance 95 (The Johns Hopkins University Press, 2001). [↑](#footnote-ref-36)
36. *Id*. at 97 (quoting the Brunelleschi petition). [↑](#footnote-ref-37)
37. *See id.* at 11. [↑](#footnote-ref-38)