

## Managing the engines of value-creation

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### Caveat

This essay is a rumination on managing private sector firms, why they exist, how they lead to economic value. Many writers see these firms as capitalism's 'engines'. The essay explores methods that go beyond presuming managing is or could be a rigorous science. Given our cultural commitment to science and its ability to reveal Nature's simple rules (such as  $e=mc^2$  or  $pV=K$ ), many hope for computable models of firms and managing. This is odd – for history shows we have been researching firms and managing them for centuries without finding either simple rules or evident progress towards them. The essay is not more of this failing program and so may seem puzzling to those expecting science. Nor does it offer seven habits, 11 tips, or any other magic potion. Rather the view that managing is difficult and important and should not be trivialized, especially by those, such as academics, who benefit from value creation by others.

The essay's first point is that while science's achievements are indeed amazing, rigorous science is not the only way we try to understand our condition – wherein the economy is central. Economics often pretends to be the science that has taken over our politics ("It's the economy, stupid!"). Science's popularity has almost displaced religion, theater, poetry, and the other ways we understand ourselves and our doings. It claims thinking is simple and can be imitated by our computing engines.

The essay takes off from Aristotle and turns on subtleties often ignored when discussing thinking. Its focus is on 'uncertainty', on 'knowledge-absences', and on 'imagining' as the way we cope with 'not-knowing'. We may be able to compute what we know but must imagine what we do not. This was well known to the Ancients – though made famous again by Don Rumsfeld's remarks about the unk-unks. The essay follows Frank Knight's intuition that firms 'exist' only because of uncertainties and would not exist without them. There is also Ronald Coase's argument that in the real world all transactions are costly, implying managers must be entrepreneurial, engage uncertainties directly and create economic value sufficient to 'cover' these costs. Managers are not helped at all by 'explanations' or theories that ignore uncertainty or presume costless transacting. Firms are made up of 'boundedly rational' people who, when managed effectively, imagine purposively and so engage complex uncertainties. The practice may create economic value.

The essay is written to managers rather than economists or management theorists. Yes, I borrow ideas from writers I mention. But this is only to help those familiar with our literature see the essay's construction and flow. The nonacademic reader does not need to pay them much attention. The citations and bibliography are not essential – after all neither firms nor managers were invented by theorists. Yes, the essay is complex in places but is anything about the human condition simple? It moves from a discussion of economic value, to business uncertainties, to the application of entrepreneurial imagination, to managerial practice, and finally onto the process of economic value creation. The analysis eventually hinges on the language entrepreneurs create to shape the activity of others, so I may seem to

offer a 'language-based' theory of the firm. Which is fine but misses the crucial dynamic as I try to address Coase's famous question "Why do firms exist?" I borrow the notion of 'engine' from engineering theory, showing how the firm cycles between 'states' and the First and Second Laws of Thermodynamics help illuminate its activity.

*Note the gender-free terms 'ne' (he/she) and 'hir' (his/her) are not misprints.*

### **What is economic value?**

As *The Economist* noted "value creation is a corporation's *raison d'être*, the ultimate measure by which it is judged" (2009). Corporations are presumed to be the engines of our capitalist system. For economists like Deirdre McCloskey capitalism is the remarkable mode of socio-economic order that has harnessed corporations to create massive economic value (wealth), 'lifting all boats', and bringing billions of us out of abject poverty and into the modern world. It follows that the business manager's primary goal is economic value creation. Economic value is not the same as profit (an accounting/legal concept); there can be value without profit and *vice versa*. Value creation is one of economics' deepest puzzles and economists have argued about its nature and sources for millennia (Fogarty, 1996). On the one hand price, on the other cost. Use value or exchange value? Objective value versus subjective? And so on. There is no consensus. Yet Joseph Schumpeter, among many others, argued economic value must be the basis of all economic analysis. Economics begins with 'truck, barter, and exchange' – creating, trading, and consuming 'things' of value.

This essay is about managing, not economics, which has its own problems. Economics is one project, measuring managers by the economic value they create quite another. Beyond profit, the more common managerial measures are 'goal attainment' or the creation and maintenance of order, as in 'command and control' or the stability and predictability of the group or firm – leading to classic notions of managing like POSDCORB (Planning, Organizing, Staffing, Directing, Coordinating, Reporting, and Budgeting). Clearly 'good management' means many different things but none seem directly connected to creating economic value. OK, we assume that long run failure to create value threatens the business's survival, forgetting liquidation, mergers, and acquisitions are strategies to 'maximize shareholder value' – presuming that the most important value to be maximized.

The discussion of economic value, along with much Western thought, was shaped by Aristotle. He argued value was based on 'need', inherently personal and subjective, without which there would be no exchange. Given people and their valuations differ, exchange may follow. Aristotle also distinguished exchange value from use value. Historians of economic thought point out that until the modern era economics was part of moral and ethical philosophy. Value was associated with 'utility for good purposes' and thus with 'justice', as in 'the just price'. Likewise, in the Islamic trading area that extended from China and SE Asia into Northern Europe, economic activity was governed by feudal power and religious beliefs about value.

As the social and political impact of agricultural and manufacturing increased in post-Reformation Europe, slowly at first but eventually explosively, economics emerged as a distinct discipline. Value was no longer measured in feudal or religious terms, it was secular. William Petty sought a good's 'natural value', what had gone into its production that could be compared with its market price or 'actual value'. Influenced by Islamic thought, 'natural value'

led onto the 'labor theory of value', famously taken up by Karl Marx. The contrary tradition was 'utility' or 'use value' – illustrated by John Law's diamonds/water paradox, the first costly but useless, the second (in the days before bottled water costing more than gasoline) inexpensive but essential. Adam Smith showed demand, subjective need, could be set against supply and its tangible costs. The market 'solves' the paradox, prices emerge as the 'value' shared, driven by both scarcity and cost. Theorists thus saw true value revealed by the process of exchange. Costs are simple when dealing with trading, the capital invested by the purchaser. But they are more complicated when goods are manufactured or 'changed', when costs include apportionment for the land and labor 'used'; hence the triad capital, land, and labor. The Medievals thought prices 'fair' when close to 'just costs', and profit non-usurious when close to the 'natural value added', reflecting a fair value of the merchant's labor – milled and bagged flour versus the farmer's grain.

Despite such complications, neoclassical economists concluded economic values were established/revealed when supply balanced demand, when the market 'cleared'. This way of analyzing economic value presupposed markets functioned well, for any malfunction would mess up the market's magical power (Invisible Hand) to reveal true economic value. The efficient market could then be analyzed using marginalist notions. Economics became mathematical; religious, feudal, and even legal aspects of economic value disappeared into the background; rigor claimed the foreground. Many accuse economists of fetishizing 'perfect markets' and shifting the analysis from the lived world into a purely imagined one. Many management writers align with these critics, arguing modern economics provides little understanding of the managers who design and run the engines of real-world economic value creation. Assuming perfect markets writes managers and managing out of the analysis – save as the fleshy computers necessary to the perfect markets' operation, at risk of being automated away. The market not the manager is the locus of action. Economic value is defined as a market phenomenon.

### **And yet – why managers matter**

Most management theorists take the 'existence' and 'nature' of firms for granted – there they are, all around us, some public, others private, some prospering, some failing; who can question their existence without appearing idiotic? While assuming they exist is fine for reading the financial pages or corporate histories, it is difficult to understand value creation so long as value is a purely market phenomenon. How do firms and their managers fit into the analysis? Coase famously asked this question in a 1937 paper and was eventually awarded a Swedish Riksbank Prize (the economists' Nobel) for doing so (Coase, 1937). Rather than taking firms for granted, he re-defined 'the firm' as an alternative mode of socio-economic organization – alternative to the markets neoclassical economists presumed the 'proper' mode of organizing. After Coase, markets were no longer the sole mode to be considered in economic analysis. Instead of claiming 'in the beginning there were markets', Coase presumed managers (entrepreneurs) were the foundation of economic action; first, choosing between modes of economic organization; second, contracting for the exchange of factors of production and products; and third, managing 'the firm' they created. Economics was not just about the second. Which implied ways of evaluating managers based on economic ideas rather than on POSDCORB criteria. Coase also suggested firms were 'able to do things markets failed to do' – connecting firms with 'market failure'. The firm was an alternative apparatus that could do what markets did not. Note Coase did not claim markets 'could not'. Rather the opposite, markets and firms were alternatives that, in principle, could handle every

'transaction'. In a specific situation, the manager's choice of firm as his mode of organizing was purely economic, presumed less costly than the markets available. Managing was 'economizing', not POSDCORBing.

Following up Coase's intuition shifts the analysis away from manager-lite axioms like perfect rationality, perfect information, and optimization and toward managing market imperfection. But a 'theory of market imperfection' may not make much sense. Yes, 'market imperfection theory' is popular among international trade theorists but does little more than express their surprise that international markets do not meet the neoclassical economists' pre-conditions – nor do any real markets, of course. Absence does not make for theory. Economists came to see an economy's history as divided between the time when markets were so imperfect that they did not function properly and the various incommensurate notions of economic value (natural, just, use, labor theory) dominated, and the paradoxes remained; versus the time after the economy's markets began to work well, when imperfections were less damaging and the economy's paradoxes and contradictions would be resolved as market processes revealed economic assets' true value as market prices. Economic value became a market-based characteristic, not inherent in the good or service being invented, manufactured, traded, or consumed. Value became 'what the market will bear', with no other basis.

The most familiar market imperfection is 'market power'. It denies the neoclassical axiom that no economic actor has the power to reshape the market's activity. Market power may arise in many ways, happenstance (finding a \$20 bill), deceit (*caveat emptor*), thievery (holdup or bribery), legal reallocation (inheriting a real estate company), changes in tax law, etc. – any reallocation of valuable resources by 'non-market forces'. The resulting heterogeneity is always 'caused' as a specific event, so there are no easy routes to a general theory. This contrast between the general and specific ways in which we 'know' is at the core of this essay, as it was for Aristotle. In the *Nicomachean Ethics* (Ch. 6) he explored how the contrast limits our thinking. In the 19<sup>th</sup> century Windelband re-labeled the distinction 'nomothetic' (general) versus 'ideographic' (specific) – the terms I shall use to be crystal clear. Theorizing is nomothetic, thinking in generalities, probably time-less. Such thinking stands at some distance from how we recollect experience. Experience is ideographic, situated, embedded in time, having a 'completeness' theorizing lacks because it is based on assumptions and simplifications (axioms). Relating experience and theory is deeply problematic – the focus of the philosophy of science. Things are made more complicated because everything we claim to know is 'held' in a specific language – for language is inherently nomothetic in that it depends on specific speakers and listeners sharing some understanding, some generalization. It follows that no experience can ever be fully captured in any practical language, what we can say is always at some distance from what we felt, setting up the poet's challenge to convey emotion. We often fall back to 'you had to be there to understand what I am saying'.

This is no mere nicety to be dismissed as over-the-top academic nonsense, irrelevant to understanding the 'real world'. The nomothetic/ideographic distinction is with us everywhere. For instance, it drives a wedge between a manager's instruction and the action that results, and how that is measured. Managers are thoroughly familiar with slippage between thinking, saying, doing, and evaluating, perhaps as Murphy's Law. Unfortunately, management theorists tend to ignore Aristotle's cautions. Many cannot accept the specificity or ideographic nature of market imperfection and presume that monopolistic power arises from something nomothetic such as 'economies of scale'/'declining average cost'. Aside from confusing the general with the specific, the argument pre-supposes the existence of the firm – the firm must

exist before economies of scale can arise. We cannot explain firms' existence by claiming that once they exist they thrive by creating market imperfections that advance their interest. No doubt once a firm exists, for whatever reason, market power may be important. Managing is then 'monopolizing', rather than economizing or POSDCORBing. Thorstein Veblen argued this long before Coase's questions and many managers would agree their focus is on monetizing competitive advantage (Veblen, 1965). But there is no theory of the firm here, of how to create firms or acquire monopoly power.

More types of market imperfection arise from the heterogeneity of managers' 'knowledge'. First, some writers presume markets are inherently unstable and 'market clearing equilibrium' or Pareto optimization is never reached. This severely undercuts the claim that markets are the sole arbiters of value. There is not much theory of why markets take time to clear, though evolutionary language often hides the lack. Clearly instant market clearing renders time irrelevant to the analysis, time's place in economic affairs is denied. Real events take place in the non-deniable 'real time' of experience. Business people say 'timing is everything' for good reason. Alfred Marshall, one of the authors of 'marginalism' in economics, was greatly interested in time, noting four variations: (a) immediate, when time is so short that managers cannot respond to changes in demand, (b) short-term, when managers can change variable cost factors, (c) medium term, when fixed-cost factors can also be changed, and (d) long-term, when external supply/demand factors dominate beyond managers' control/influence. Whether supply or demand is the stronger determinant of value varies according to the kind of time, as does the situation's openness to manager's influence. In this framing, managing is reallocating resources and adjusting market engagements in the light of market conditions, the firm being an apparatus to hold and allocate resources and to contract with suppliers and customers. Conversely, economic time is defined by managers' powers of intervention. This makes good sense, but what criteria should managers use to choose between possibilities? So long as their choices are based on market valuations the market remains the apparatus for discovering the values that must determine rational choices. Time's mattering and the market being imperfect means the relevant valuations arise only after managers have allocated resources, and managed the processes of their consumption. The analysis is *ex-post* and ideographic rather than nomothetic and, once again, cannot explain why firms exist.

When it comes to knowledge, the information necessary to the market's proper function may not be available. Friedrich Hayek got good mileage out of this observation, concluding a centralized economy would be bound to fail because its planners could never obtain all the knowledge they needed to run it. He suggested setting the actors free from the planners, to interact in their own interest – free markets. The market then operated as the most powerful knowledge distribution device known to Man – a conjecture with enormous political implications. But since the 'true' knowledge only arises *ex-post* as the market settles, there is no *ex-ante* route to optimal choice – managing remains central. This gap between the information the actor needs and what the market provides is matched by a second gap Hayek overlooked between the knowledge provided and how the actor/manager absorbed it – reflecting our cognitive limits and biases, recently popularized.

Axiomatizing these limits, the firm can be redefined as an apparatus for acquiring and attaching meaning to economic information that goes beyond humans' cognitive limits. Herb Simon, another Nobel winner, suggested this but provided no clear theory even as he helped invent AI. Today many are excited by AI and 'big data', unaware of these technologies' own limits, of how such machines can and cannot 'know', and thus of how they might change our view of firms and managing. The firm is re-defined as a type of computer to be used when the

market, as Man's most powerful information device, fails to process information to the point markets clear. Managing then comprises knowledge acquisition, managing the knowledge's meaning, and choosing. Some call this 'strategizing'. A general theory of strategy is an information-based theory of the firm, its context, and of managing the relationship. Many presume 'strategizing' is nomothetic, a theory for all seasons and contexts, disregarding Carl von Clausewitz's cautions about the idiographic nature of battle and politics.

Before turning to how this line of analysis might clarify real-world managing there is a further important imperfection, 'externalities'. Taking firms for granted also means taking their 'boundaries' for granted. Coase challenged micro economists' assumptions with his four 'killer questions', not only "Why do firms exist?", but also "Why are their boundaries as they are? Why are their internal structures as they are? Why is their performance so varied?" Externality is a micro economists' term for the permeability of the boundary between the firm and its markets – which comprises suppliers, customers, competitors, inventors, and so on, a characterization popularized by Michael Porter's 5-forces model. The term is often used to point to costs and benefits escaping the analysis, imperfection arising from some agents' positive power to consume what they have not paid for or, negative, having to bear costs without benefitting. When the firm's boundaries are permeable it is either because managers have the power to reshape the firm's markets or conversely, others can affect the value of the firm's assets. As noted above, the firm must exist before it has power. Managing is then focused on 'boundary management'; (a) applying the firm's market power and monetizing that into monopolistic rent-streams (above normal profits) and (b) defending its rent-streams from those who would undo them. Porter's analysis identified some of these external agents as 'forces' that can attack the firm's citadel and undo its bundle of rents. Strategizing pushes back against such invasion, restoring the firm's boundaries. But despite his 'value chain' Porter offered no theory of how the firm's rent streams arise in the first place, to need defending later.

### **Dealing with uncertainty**

The previous section points to ways in which real-world markets fail to make managing irrelevant, the neoclassical economists' aim. This section gets closer to what managers can contribute to a real economy, especially by creating economic value. Clearly managers create, manipulate, and apply economically-relevant knowledge. Making sense of this requires going beyond generalities and engaging specifics, exploring how the ideographics complement the nomothetics. Imperfection is an economists' idiographic term for uncertainty, an absence of the certainty framed as predictability. Paradoxically the Aristotelian nomothetic/idiographic distinction shows that uncertainty is the precondition to our knowing and thinking. There is no knowing without uncertainty, the experience of not-knowing. As Simon noted, thinking is meaningless to the omniscient. There is no thinking without uncertainty, specifically the impossibility of generalizing conclusively about any experience or fully knowing the practical implications of a theory. Dogmatism, imagining a knowable world closed to experience, certain *ex assumptio*, denies thinking as most of us understand it. There is no possibility of being wrong. The only mental activity admitted is computation, as well done by computers which do not 'think' as we do. Many economists and management theorists pursuing empirically testable theories seem unaware such theories are nomothetic even as empirical tests generate idiographic reports that can never fully capture 'what happened'. Aristotle's two ways of knowing can never be fully or logically reconciled,

falsification, the claim that a contrary experience defeats a theory, can never be conclusive. Further evidence can always upend the conclusion.

No uncertainty, no thinking, and no choice or real-world economic activity shaped by what agents think. Again, this is no mere philosophical nicety, uncertainty is at the heart of all economic activity even if most economists and management theorists dismiss it. Rational actors only trade when they disagree about some property's value *ex-ante*, when they see its value as uncertain, when they disagree. The market valuation, the price at which the deal closed, is the economic certainty that emerges *ex-post*, after the exchange, resolving the uncertainty. Coase embraced uncertainty as the fundamental characteristic of real world economics, pillorying his colleagues for ignoring it and generalizing away from the specifics he insisted were essential to economic analysis. His views were molded by his reaction to Frank Knight's ideas (Knight, 1921; Knight, 1951). Coase later said that Knight was the person who most shaped his thinking. Knight, who won the Walker Award that later morphed into the Nobel, earlier suggested that absent economic uncertainties neither firms nor managers could exist or be explained. Coase concurred, leading onto the idea that 'transaction costs' were those of dealing with Knightian uncertainty as firms arose to complement and resolve the market's imperfections and failures. The rest of the essay explores management's part in making this work in practice.

The section above lists some imperfections, implying a corresponding list of modes of managing, each with a specific relationship to a corresponding type of economic value creation. The list of imperfections and of ways to characterize 'the firm' and manage it is immensely long, because each is an ideographic notion grounded, as Coase pleaded, in 'reality' rather than in simplifying abstractions. Absent all imperfections the economy condenses into a space-time point of Pareto optimality – an economic Archimedean Fulcrum where everything is in a state of perfection, the best of all possible worlds. No further economic activity and no managing. From the Coasian point of view, firms play a complementary role in economics, like the 'last mile' for telecommunications providers, adding needed capabilities to imperfect markets and so 'completing' or 'realizing' the economy – entrepreneurs (whom Daniel Defoe called 'projectors') then 'put it in motion' to yield its economic and social (and political) benefits. Firms are imperfect, not the perfect machines many organization theorists pursue. But the firm's imperfections may be able to 'absorb' and 'resolve' imperfections in the markets they engage.

An Economy =  $f(\text{Imperfect Markets} + \text{Firms})$ .

This relation cannot be read as nomothetic for every concept of 'firm' is ideographic, contingent on and specific to the 'imperfection' identified. Nor is the plus sign 'simple'. The expression's parts are 'apples and oranges', incommensurate, not related logically. Thus, managing is 'complex', the practice of bringing disparate things together through integration and synthesis. The list of imperfections implies various 'economic realities' to be integrated, a plurality somewhat like the plurality of pre-modern ideas about value. Managers' pursuit of economic value, particularly when they intend to monetize it for their shareholders, hinges on grasping the fruits of resolving the economy's imperfections/uncertainties. Any attempt to theorize this is a 'theory of the firm' (ToF).

The simplest ToF is 'arbitrage', Richard Cantillon's 18<sup>th</sup> century notion of the entrepreneur who, for instance, knows the price of nutmeg is low in the Moluccas and high in Amsterdam and trades on the difference. The uncertainty is specific to geography and commodity

(nutmeg). The entrepreneur, not a nomothetic generality, enacts an idiographic 'project' like that of Antonio and his colleagues in *The Merchant of Venice*, that 'completes' this 'economy' with a set of contracts – farming, shipping, selling. The nutmeg is moved from farmer to consumer, perhaps at a handsome profit. The voyage is uncertain, as is nutmeg's price on landing, to say nothing of principal-agent problems at every stage. Cantillon's firm is defined as ownership of the project's contracts and resources, and the owner/entrepreneur's ability to transfer them on his signature (*firma*). Coase commented that the arbitrageur's scope would be transformed by technological change, modern logistics, and so on but would still hinge on grasping specific uncertainties and preventing others from doing so. Arbitrage moves resources through space to where they have higher value – a ton of nutmeg in Amsterdam has higher value than in the Moluccas. And through time, a ton of corn may be less valuable at harvest time than in Spring. Acting on such exogenously driven values may make the economy as a whole better off; trade can increase the total value of resources possessed. Whether the entrepreneur benefits thereby will remain a question of distribution, the tenuous boundary between entrepreneur, firm, and market. Ne may miss monetizing a share of the new value resulting from successful integration.

Jean-Baptiste Say's 19<sup>th</sup> century entrepreneur is up one level of complexity and uncertainty from Cantillon's. Say's entrepreneur 'moves resources out of an area of low productivity into an area of higher productivity and greater yield'. He goes beyond the arbitrageur's exploitation of difference in value to exploit differences in productivity which, in turn, requires bringing some resource into economic relationship with some dissimilar resource. Say's firm transforms resources rather than transfers them. His firm is what 'the firm' generally means today, a mode of economic organization distinct from 'markets' that transforms inputs into outputs. Markets do not 'exist' as firms do. Firms appear to have solidity and identity. In contrast, 'market' is the economists' term-of-art that summarizes multiple idiographic trades/transactions. These transactions may have little in common with each other. Some writers presume markets can be differentiated by the commodity exchanged. It gets confusing because markets also seem to transform one commodity into another – nutmeg into cash into ships and so on – but it is the entrepreneur who does this, not the market.

Economists and management theorists hope a firm's process adds value. But how can this work? Say's firm adds transformation to arbitrage, integrating resources, lifting one to higher value by integrating it with others. But the process is 'complex', as is the plus sign above. It is no simple addition because real-world 'resources' are not simple; they are complex, uncertain, and incompletely understood because understanding them stands on incommensurate axioms. As Penrose argued, there is no certainty about a resource's use or value. Much economic theorizing presumes homogenous resources, a single commodity, certain and completely measurable, fully own-able with full title. Under which circumstances markets can achieve complete integration, but no new value is created. In the real-world all ownership and property is subject to the political system, there is no full title. Real markets and firms can integrate complex and heterogeneous resources, tangibles and intangibles such as ideas, with both nomothetic and idiographic aspects.

In well-functioning markets the only uncertainty admitted is the agents' divergent valuing. The markets do not fail; agents interact and close a deal. Cantillon's mode of integration – arbitrage – is 'spot' – offer and deal, inform and agree. There is no labor or transforming resource to be integrated. Management's role is to price, find a buyer, contract, and deliver, price being sufficient to close the deal. In Say's firm the resources are complex and 'divergent in character'. There is no necessary relationship. For instance, we know no necessary



(logical) relation between apples, flour, butter, sugar, salt, and water that makes for a great apple-pie. Recipes differ from theories and formulae precisely because imagination as well as reason must be brought into play. The situation is complex because much is known nomothetically and can be described definitively – as apple, flour, and so on are defined and sometimes standardized. But no recipe can be complete. Its instructions are never fully sufficient to determine the cook's practice. The gap is idiographic, the recipe's uncertainties pointing to a space for the cook to experience projecting his imagination into the pie-making process. People are defined by what they imagine and act on rather than by what they know. The recipe offers the cook an opportunity to transform imagination into value in a specific situation. Even when AI enters the kitchen an optimum formula is not likely to emerge because ingredients and consumer tastes vary in ways that defy formulaic (computable) summary. Note that designing and building an apple-pie production line and a logistic system for getting them to consumers merely pushes resolving the uncertainties to the system's boundaries as issues of quality control and measuring consumer taste. James Thompson likewise distinguished managing the firm's rational core from managing its boundaries.

Cantillon's concept of the firm was of trading. Say extended this to include transforming and integrating. Business has been around for millennia and was much discussed in medieval times, so these characterizations were not novel. Rather these writers provided more precise ways of talking about business. Later writers focused in structuring and administering the processes of transformation, integration, and engaging input and output markets. The analysis split into theories of designing and controlling firms (organization theory or OT), theories of persuading people to populate them productively (organization behavior or OB), theories of how to persuade people beyond the firm to sell and buy the necessary goods and services (purchasing and marketing theory) and theories of how to deal with competition (strategy). While the early ideas still underpin the discourse, much has changed – more products, services, manufacturing, trading, data, managing, and more writing. But, ironically, modern analytic methods have become more scientific than those in the past, proposing management as a science, squeezing out of consideration the very uncertainties that Knight and Coase argued were preconditions to firms' existence. No question the literature generated by management writers since WW2 is a magnificent academic achievement and a platform for today's global management education industry. But its impact on management practice seems less so.

### **A typology of uncertainties**

There is some heavy stuff in this section – but we cannot get beyond today's literature on managing as rational decision-making and connect with managers' practice without engaging uncertainty. All attempts to define uncertainty must fail – by definition, for to define is to take as certain, axiomatic. Those who see uncertainty in terms of probability stand on the certainty of population statistics. Knight saw such modified certainty as 'risk'. Yes, risk management is important, just as is distinguishing knowing definitively from knowing statistically. But the difference here is methodological and neither mode grasps Knightian uncertainty. Probability is logical/nomothetic, computable. In contrast Knight's notion was implicitly idiographic, the sense of an absence of certainty arising from an ideographic experience of not-knowing. Something failed, what was expected did not occur – why not? Was the causal sequence (nomothetic) adopted wrong, or did the fault lie with the situation's ideographic characterization – its initial conditions etc.? Such questions must still be expressed in language, thus standing on what is known. Like us all, Knight struggled with Aristotle's

nomothetic/idiographic distinction, the failure to relate knowing and experiencing, the inevitable separation between the totality and immediacy of living versus explaining it with abstract concepts.

Knight studied science, religion, and philosophy before switching to economics. He knew the limits to human knowing have been explored for millennia in philosophy, religion, theater, and every other form of the arts, e.g. figure/ground reversal, Velázquez's *Las Meninas*, or the confusions of *Midsummer Night's Dream*. One striking medieval metaphor is that 'it is not given to Man to enter God's Mind', to arrive at the Archimedean Fulcrum from where everything is certain and things are what they seem to be. Coase was one of the few who carried Knight's intuition about uncertainty in economics further. But neither Knight nor Coase wrote much about managing. We must dig deeper. The nomothetic/idiographic distinction points to a state of not-knowing that awaits integrating the parts into a reasoned practice that resolves the distinction. This is the 'micro foundation' or 'micro-institutionalization process' of value creation. Something similar happens in the natural sciences, leading to the tectonic shifts in thinking Thomas Kuhn called 'paradigm shifts'. Einstein achieved one by bringing physicists' notion of mass together with their seemingly unrelated notion of energy – changing both and paving the way for nuclear energy. Until synthesis happens experience keeps reminding us that we know multiple things in multiple ways, none for certain. Our knowledge suffers all manner of imperfections, contradictions, and fragmentation. Crucially, these defects are not in the things we seek to know. These may well be 'real' – coherent, logically constructed, existing, simply 'there' as 'realists' believe. Rather the defects in our knowledge are aspects of how we know. We cannot know anything for certain or objectively. Knowing is subjective, an aspect of us, even when we claim to know facts. Knowledge is a human artifact, an aspect of consciousness. We are the source of all the uncertainties we can be aware of. The effective manager/entrepreneur's special talent is to dig into these for those that can be engaged with imaginative practice to their benefit – mini-Einsteins of the economy.

The most familiar mode of not-knowing is being 'ignorant' of what can be known, a mark of our scientific era. In prior times the most pressing forms of not-knowing were often religious, such as fearing God's vengeance, unknowable. Ignorance has been brought to the top of our list of uncertainties by our society's turn towards science as the 'one true mode of knowing'. Note science sets out presuming everything worth knowing is knowable, independent of our knowing and researching, that there is an unshakeable Truth. The Scientific Method guides us to overcome our ignorance of this Truth. Science-talk has become privileged in our era. The Internet and media show big money can be made informing people about things they believe knowable. Yet we also see 'fake news' and hope the less-privileged media talk reports the Truth rather than Falsity.

Dealing with others' ignorance is not the only or even the most important entrepreneurial opportunity in our polity. In practice, our knowing and not-knowing is vastly more complicated than the notion of objective Truth or its absence allows. Aristotle reminds us ignorance and incommensurability are completely different types of not-knowing. Again, our enthusiasm for science tempts us to collapse the difference, to treat incommensurability as type of ignorance, presuming we can arrive at the Truth by integrating known facts. But, as suggested earlier, this is ironic – it eventually evacuates the idea of human knowing, rendering knowledge irrelevant, rather than moving us towards Truth.

Karl Popper's falsification is a curious interpretation of the nomothetic/idiographic distinction that presumes the possibility of a scientific (logical) connection between a theory and an experimental finding. Alfred Ayer's slap-down showed falsification and verification were not asymmetric, one black swan does not disprove the claim 'all swans are white'. It merely throws the claim into question. Our sense of knowing is 'irritated'. When the experimental finding is presented as an application of the theory under test, it is tautological; the result cannot but confirm the theory. Popper's argument was appealing, but all informative experimentation must be knowledge-independent of the theory being tested, in which case the relation between the theory under test (the hypothesis) and the experimental result is problematic, incommensurable, not conclusive. Rather it is a complex kind of not-knowing that calls forth the experimenter's judgment about 'what really happened'.

The distinction between incommensurability and ignorance is no philosophical word game. Resolving uncertainty by integrating such fragments into shapeable practice is the entrepreneur's route to value creation. Enterprising managers must understand/sense uncertainty enough to engage it. They can never control it completely; the outcome cannot be fully predicted. Key is the observation that experienced managers engage ignorance and incommensurability with very different practices. Ignorance of the presumed knowable leads on to 'research'. Incommensurability calls for discussion, negotiation, reconciliation. Capable managers' ability to characterize the situation's uncertainty and thereby choose an appropriate practice seems natural and obvious. Managers are effective when they can 'read' the situation, 'recognize' uncertainties, and 'diagnose' them into categories of practice. Recognition is an act of imagination. Note the difficulty of 'teaching' computers to recognize, for they have no imagination and can only 'match' the data they 'know' in memory with what they know through 'seeing', even when aided by algorithms that speed the memory search. Academics who admit only one type of uncertainty, ignorance, blind themselves to managers' diagnostic and entrepreneurial skills.

Again, ignorance presumes the prior existence of what is knowable, a coherent and logically constructed 'objective reality' that exists already and is unaffected by our research practice. It is as if humankind is characterized as a Single Supreme Scientist, probing Nature with unambiguous yes/no questions. Such science admits no incommensurabilities, everything is presumed equally real and explainable. But the Scientific Method is not our only method of dealing with not-knowing. Analyzing managing changes completely when we admit incommensurability, the fragmented nature of our imperfect knowing, as distinct from ignorance of the perfectly known. We address incommensurability by debating alternative 'knowns'. Note how people and their subjectivity are drawn in. The 'negotiation' process is not 'objective' because it hinges on the participants' particulars, their specific not-knowing. There is no general model – implying there can be no scientific model of managing or 'the firm' if negotiation is its fundamental process. Yes, some propose rigorous theories of negotiation but must set out by defining (axiomatizing) the participants and their choosing behaviors, claiming to know people, to have a true theory of the individual. Poets know better. The human individual is not knowable to us; we do not know ourselves, let alone anyone else. Our imagination indicates what we do not know. Consequently, real interaction is more complex, we ask advice, we reflect, allowing some dialectical interplay between alternatives. The practice of dealing with incommensurability, the going back and forth between possibilities, is very different from dealing with ignorance and the scientific back and forth between hypothesis and evidence. Yet both processes are dynamic, implying the analysis of value creation must stand on dynamic models/ideas.

Managers must diagnose before instructing action, just as physicians must determine the patient's condition before prescribing professionally. Is this an A-situation or a B-situation? Managers' (and physicians') diagnostic skills vary widely. Even with the best science, gathering data and reducing ignorance seldom leads to definitive doubt-free conclusions. Some uncertainty remains to be 'diagnosed'. Good diagnosticians are highly regarded for good reason; their choices often push the boundaries of professional practice – famously in the case of puerperal fever. We might debate 'internally', but differences in characterization may arise 'externally', such as agent C and agent D disagreeing over value. Here a third mode of uncertainty appears as 'indeterminacy', the difficulty of knowing how D will respond to C's move. Note time and expectation enter the analysis. In circumstances of indeterminacy the manager's choice of mindful practice is often 'negotiation'. Rather than researching (scientifically) a presumed reality, managers proceed by bringing contrasting but different ideas, knowns, and doubts together. Entrepreneurship and value creation is more often driven by synthesizing practice than by scientific research. This essay concludes by proposing 'the firm' as a managed complex of human interaction that grasps targeted idiographic uncertainties evident in the socio-economy. The resulting practice may lead to economic value creation.

To conclude this section, the three types of uncertainty noted – ignorance, incommensurability, indeterminacy – must be complemented by a fourth – 'irrelevance'. All human knowledge is held in language. Negotiation requires sharing language. Likewise, the entrepreneur must create a language that enables hir to consummate the complex or bundle of contracts that bring the business into economic existence, no longer just an idea beyond the real world, rather made ready-to-hand to be 'set in motion' as Schumpeter suggested. Managers need a language specific to the firm that enables them to issue directions and evaluate the consequences of the motions they generate. There is no nomothetic (universal or formal) language. Even when this language is idiographic and identified/constructed, it may not relate adequately to the ideas and actions necessary for the firm to succeed, and so be irrelevant. One downside of using consultants is that their language, embodied in their 'strategic tools', may prove irrelevant to the resources and practices necessary for their client's success. Likewise business meetings, often considered a superfluous part of corporate life, are often crucial loci for adapting, updating, and promulgating new business language. Again, negotiation is often the most effective route to improvement, calling for managers to engage in skilled listening and persuasion. But sometimes new language does not lead to improvement.

The next section moves towards the practice of engaging uncertainty. The section above claims some grasp of specific uncertainties is necessary to understanding a firm and managing it. Science and its methods are focused on engaging ignorance of the general, one mode of value creation. But managers need also to be adept with incommensurability, indeterminacy, and irrelevance, and consequently with shaping, motivating, and empowering the practices of others. Even in our technology-penetrated era, science seldom drives business success. Schumpeter insisted it was the business application of science that shifts the economy from creative destruction to economic growth, not science's progress alone.

### **Creating economic value**

Value-creation hinges on engaging specific imperfections/uncertainties. The immediate question is "Which of the several imperfections noted above offers the most illuminating

model of managing?” The answer is probably “Them all” for they are inseparable, each implying the other in the same kind of plurality as began the essay’s discussion of value. Rather than being synthesized into Truth, the entrepreneurial responses to the imperfections are brought together in a coherent ‘actionable’ language, idiographic, contingent to the situation. The ‘nature of the Coasian firm’ is ultimately persuasive language. Edith Penrose argued resources have no economic value absent what people can say about them; a tool is nothing without communicating the skill to use it. Her management team’s knowledge is generated collaboratively through discussions of practice, reconceptualization of the use-value of ‘resources’. Her firm’s growth is constrained by the growth of the language necessary to integrate its bundle of resources and put them in motion. The language must be purposive, oriented towards specific strategic goals. Experience cannot distill into useful knowledge without purposive language. All science-talk is directed towards institutional ends, it is not ‘objective’ or free of social inflexion. Likewise, tacit knowledge is irrelevant without the purposive knowledge that articulates it into the real world, so suggesting the practical results as a pragmatic truth-criterion.

It is easy to confuse the claim that language is core to the firm’s nature with the claim that ‘knowledge’ is a firm’s most important asset, implying there is some meta-language about bringing knowledge to bear on the firm. The firm’s language is all-encompassing. It defines everything that can be known about the firm. It synthesizes the firm’s knowing, thinking, and practices. Yes, the entrepreneur must create a language that holds his idea before it can lead to value. But the managers’ instructions, like a recipe, are never entirely sufficient to the employees’ or contractors’ practice, never fully determining. Uncertainties remain and the individual actor’s imagination must be brought into play. The firm’s language does not evolve on a *tabula rasa*, it must push previous language/s aside, persuading employees and others to ‘get with the entrepreneur’s program’ rather than pursue prior personal ends. The manager’s overarching task is to control the firm’s language in this contested space. It shapes what others attend to or ignore among the complexities of every real situation. Language is the managers’ instrument to shape how others engage the situation’s ignorances, incommensurabilities, and indeterminacies and grasp them in the pursuit of value. Managing is ultimately a rhetorical practice, a talking game. Aristotle, whose book on rhetoric established its study and which remains supreme today described (rather than defined) rhetoric as idiographic – the development of the ‘most effective means of persuasion in a particular situation’ – contingent on aim, audience, context, history, timing, resources, etc.

Every ToF stands on an entrepreneurial idea that implemented might (a) enrich the economy as a whole and (b) provide the entrepreneur an opportunity to get a ‘piece of the action’. Arbitrage leads to a ToF wherein the purchaser allows the entrepreneur a share of the price paid, perhaps knowingly perhaps unwittingly. The more uncertainties there are about the deal, the greater the entrepreneur’s opportunities to gain from engaging them. The knowledge-absences that separate sellers and buyers and make arbitrage possible are ‘out there in the market’ where ‘effectual’ entrepreneurs can poke around and find them as ‘opportunities’. In contrast, the firm is a closed environment of idiographic language (jargon/corporate-speak) wherein the entrepreneur can ‘hide’ the process of integration that resolves his chosen knowledge-absences. NDAs (non-disclosure agreements), like patents and trademarks, act to keep the firm’s secret out of the market. Part of managing is boundary management – keeping the firm’s integration process secret, the opposite of ‘transparency’. Veblen noted the relationship between secrecy and profit; ‘full disclosure’ eliminates the firm’s opportunity.

Arbitrage is the minimal value-creation process – the firm’s ‘micro-foundation’ – two agents, a negotiation language, an agreement/contract, and a process of contract execution. The connection between one agent’s desire to supply and the other’s demand is ‘simple’; its dimensions reflecting the agents’ diverging views. Value is subjective, changed as the deal’s execution shifts both parties’ view/valuation of the assets they possess. We go to eBay to dispose of the pot grandma kept treasured on the mantelpiece. Now there is room for something else, we have the cash and a buyer has the pot. There can be no deal without the differing views and cash enough to cover the transaction costs. Just as in the practice of relating nomothetic and idiographic knowing, there is dynamic motion at the heart of negotiation – offer and counter-offer until the deal closes. The deal’s uncertainties are never fully resolved *ex ante* nor does the economy halt at equilibrium. It is forever in motion, as Schumpeter argued. The process may be oscillation, flip-flopping between nomothetic and idiographic. Popper’s method of scientific discovery flip-flops between hypothesis and empirical test, and back again, never arriving at Truth. There is an analogy with von Neumann architecture computers – flip-flopping between transferring information and executing computation.

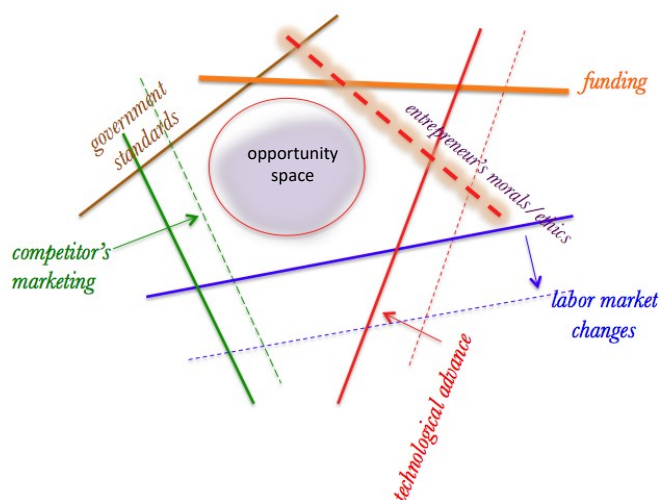
Say’s firm is complex, more connections, some incommensurate, others interactive and indeterminate. There may be resource-transforming labor, perhaps capital equipment too, sometimes regarded as ‘stored labor’. One mode of value creation is extractive. The 18<sup>th</sup> Century French Physiocrats lived in an economy dominated by agriculture and argued all value is extracted from Nature. Farmers, miners, or well-drillers ‘arbitrage’ with Nature, knowing how to capture and reshape her gifts and draw them into the socio-economy (sometimes, but not always, to her benefit). Adam Smith counted some Physiocrats as colleagues but countered their arguments by pointing to the division of labor and the mechanism by which the human imagination is monetized through improvements in coordination. Though bounded by ‘the extent of the market’ the infinitude of human imagination is set apart from Nature’s ‘materiality’. Smith wrote about manufacturing, but the notion extends to services and other non-market processes. The resources available are raised to new value by modes of coordination that are complex precisely because they cannot be reduced to a logical rigorous model. Smith’s firm’s dependence on imagination makes it an order of magnitude more ‘complex’. There is ‘art’ in imagining how incommensurate resources can be drawn together. Smith showed managing is an art-form, perhaps capitalism’s most fundamental art-form. Knight argued for business as an art-form in a seldom noted paper (Knight, 1923).

The imagination’s place in arbitrage can be framed as occupying the ‘opportunity space’ between A’s position and B’s. The space ‘between’ what is known can be illustrated by Adam Smith’s firm. He defined enterprise as a dynamic process within an opportunity space marked out by capital, land, and labor. The boundary to the space is not general, it is specific to what is known – the quantities of capital, land and labor – but also to the incommensurability of their measurement. How much is this land worth? A contingent market-dependent question, likewise the relation between capital and labor; relations only known *ex post* after the relevant market clears. Smith wrestled with ‘entrepreneurship’ as a fourth ‘factor of production’. This helped confuse science-oriented researchers who set out presuming entrepreneurship is a kind of talent or set of traits that can be measured nomothetically and distinguished from the ideographic event of its application, defined in a way that does not stand on the idiographic knowns being brought together in the instance of applying imagination. The entrepreneurial capacity is capitalism’s version of John Keats’s ‘negative capability’, the poet’s capacity to

enter and occupy the universal space of life's uncertainties – made familiar as the entrepreneur's capacity to live with (inhabit) uncertainty and ambiguity.

Today's managers must bring together more factors of production than Smith noted. In addition to the details of the firm's supply and demand markets, there are non-market factors such as government regulation, corporate law, and social norms. Every entrepreneur's appetite for uncertainty is limited, too big a bite, no language can be generated to grasp it. Too small a bite, insufficient value created to overcome the unavoidable transaction costs. Porter pointed to the competition generated by other firms and technological change. There is the task of motivating the personnel involved. Communication issues attract attention. Notwithstanding these many possibilities empirical research suggests that the entrepreneurial aspects of most business activity can be framed within a dozen or so 'knowns' – axioms to the firm's language (Spender, 1989). These knowns or constraints to practice are specific to the firm, there is no general model. Bankers and engineers do not attend to the same matters as psychiatrists. Characterizing a firm's language cannot squeeze out all the uncertainty. Some remains, Murphy's Law can always kick in. There is no business model that can dictate how to create value in the booming, buzzing confusion of the real economy. There, as Knight suggested, no uncertainty, no profit.

**Figure 1** The entrepreneurial opportunity space (Spender, 2014:179)



The characterization provides a model of entrepreneurial management, somewhat nomothetic but ultimately relating selected knowns with selected unknowns, the selection being 'strategizing' (see Figure 1). It has been labeled a recipe. It can be illustrated as the multi-faceted boundary between what is known about the firm's resources before they are integrated into the firm's practice and what is known afterwards from experience. The uncertainties can be expressed as unknowns 'trapped' between 'knowns' that others may know but do not know how to bring into relation – just as arbitrage requires knowing price differences and how to negotiate. The opportunity space cannot be occupied by rigorous calculation; the recipe is not a formula. It is more a place of practice awaiting a rhetorician, an artist of persuasive language, rather than a painter.

The rhetor's task is to construct 'propaganda', the firm's own ideographic language using what his audience already understands or can be persuaded into. It is complex for it must be

'dozen-faceted' and embrace all the relations between what the firm knows and what others beyond it know. This language is as close as an analyst can get to the entrepreneurial practice that synthesizes the firm's knowledge into practice, putting the firm's resources 'in motion'. Rhetors know that 'natural' or 'informal' language can carry judgment and emotion. Formal, rigorously constructed language such as computer code or mathematics cannot. A computer's only concept of uncertainty is ignorance. It brings it to a halt, awaiting further data or instruction. Everything a computer can know is 'of a piece', coherent, expressible in a single language – such as C++. People speak natural language that admits the imperfections identified above as in markets – contradictions, errors, lacunae, gaps with experience, and so on. The downside is that natural language disables 'proof' – falsification fails. The upside is that it can capture how we deploy imagination to engage the world's uncertainties – and collaborate to pursue our goals.

### **Concluding comments**

There is no economics without value creation; economics is not merely about value distribution through markets imperfect or otherwise. This thought is not original. As noted earlier, Coase suggested positive transaction costs are an inevitable and ineradicable feature of the real world. But the less remarked corollary is that there can be no economic activity that does not create new value sufficient to cover these costs. Thus, Coase called for a theory of economic value creation. Again, he was not original in this. Earlier French economists such as Jules Dupuit related economics to thermodynamics (Ekelund and Hébert, 1999). Contrary to what many neoclassical economists believe, economics cannot be a physics because non-zero transaction costs mean it must escape the First Law of Thermodynamics. Likewise, Georgescu-Roegen argued economics is illuminated by the Second Law of Thermodynamics, that there is no real-world activity without energy loss – just as Coase claimed there is no economic activity without transaction costs. Real-world activity bridges different states of being. Engines, like those that move our automobiles, create motion by burning fuel – fuel and motion are wildly incommensurate states of energy, so how to bring them together? Diesel engines cycle – heat (burning fuel) in, pressure, expansion motion, heat out (exhaust), compression motion, heat in, and so on. The cycle is a dialog/negotiation between incommensurate energy states; fuel and motion. (Electric cars do likewise with a very different cycle.)

The essay argues the engine metaphor is equally apt for understanding firms, they are value-creating engines negotiating between divergent agents and divergent states of valuation. As with the Second Law, non-zero transaction costs mean value creation leads inevitably to social costs and externalities. Whether these exceed the economic value created is always determined by politics. Thus, there can be no non-political theory of the firm or of managing it. Management is a political activity.

My overarching claim is that managing is practical philosophizing about the property-based world we inhabit. We cannot avoid grappling with how people know, how they do not, and how they apply imagination to generate value-creating practice. Academics who assert managing can/should be scientific and rigorous are hopelessly out to lunch and have nothing pertinent to say to managers. Economic value is only created as the total value of the resources available to the economy is increased by overcoming uncertainty. Sometimes the process is simple, as is proclaiming conch-shells found on the beach are currency. Economic value is always an aspect of a specific society – and its politics. Note there was commerce in



the death camps with values unrelated to the world beyond the wire. Economic value is arbitrary, a human/social artifact. It has no objective foundation. Politics always determines value, just as the 500 rupee note was lately proclaimed worthless or drug prices go up when possession is made illegal. Managers always operate within an idiographic political-economic space and look at it through the lens of the relevant recipe/business model, looking for answers to the eternal managerial question “What does it mean for us?”

The essay claims ‘the firm’ is best grasped as a rhetorical process that transforms others’ reasoning and imagining into practices that lead those engaged to re-value their assets – whether tangible or intangible. The firm’s own language is the closest an analyst can ever get to the idiographic nature of ‘the firm’ as comprised of these value-creating practices. Note how mission statements are important less for what they say than how the practice of creating them reshapes the firm’s own language. The language’s explanatory capacity can be assessed by its closeness to how those inhabiting the firm talk. The gap between many economists’ and management theorists’ rigorous science-talk and such firm-specific talk is generally considerable.

Economics is not society’s only way of looking at and understanding itself. In the past religion was dominant, with its own recipes for maintaining status and effecting change. Many thought reason and science would provide more clarity, and today economics seems to dominate. But it cannot be science warmed-over, with claims of market-driven certainty. To the contrary, economic activity only happens when it engages the uncertainties of our circumstances. Rather than a rigorous science the real-world economics Coase sought would be capitalism’s poetry, its politics by other means.

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