Pragmatic ICTs for Technical Communication:
Aesthetic and Ethical Experiences in Business Philosophy

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Introduction: meaning business

Summary: In this article, my goal is to reflect philosophically on the uses of Information and Communication Technologies (ICTs) in technical communication, which is partly a reflection on my professional experience. This inquiry will be empirically grounded in institutional economics advocated by John Kenneth Galbraith, and it will be philosophically aligned with the pragmatist tradition following John Dewey.

The philosophical meanings of technologies: some historical overview

Summary: In this section, I draw on various insights from aesthetics, philosophy, history, and social science to help shed light on what the terms ‘technical’ and ‘technology’ mean in theory and practice.

Pragmatic technologies: linguistic and aesthetic dimensions behind technical communication

Summary: Here I examine linguistic and aesthetic dimensions behind the uses of ICTs in business, especially from a pragmatist perspective. This examination allows us to define the ‘technical’ and the ‘technological’ in the pragmatist senses and to differentiate pragmatic technologies from previous Enlightenment philosophies of technology.

Pragmatic ICTs and the technostructure: uncertainties from technological interconnectivity

Summary: Now we can relate the linguistic and aesthetic dimensions of ICTs to the contemporary nature of technological interconnectivity. I define ‘pragmatic ICTs.’

Ethical communicative planning: mutual interests and improved social habits

Summary: This section considers how pragmatic ICTs can function as an ethical basis for business planning in technical communication by uniting facts with values and means with ends to promote mutual interests and improved social habits.

Pragmatic casuistry: beyond the modernist and postmodernist dichotomy

Summary: Before concluding we must make applied pragmatist ethics more explicit by prioritizing moral values like robustness over others like expediency. The method of casuistry with an experimental outlook can serve as a starting point for this ethics.

Conclusion: a pragmatist philosophy of technical communication

Summary: This conclusion insists not only on the importance of business philosophy but also on business philosophy’s need for pragmatist thinking in professions like technical communication.
Introduction: meaning business

“In the Cold War years . . . the word planning acquired grave ideological overtones. . . . For understanding the economy of the United States and other advanced industrial countries, this reaction against the word planning could hardly have been worse timed. It occurred when the increased use of technology and the accompanying commitment of time and capital were forcing extensive planning on all industrial communities—by firms and of firms’ behavior by government. The ban on the use of the word planning excluded reflection on the reality of planning.”—John Kenneth Galbraith (2007, pp 25-26).

“I believe that education, therefore, is a process of living and not a preparation for future living.”—John Dewey (1897, pp 7).

Years ago I was one of the most unlikely individuals to launch a career in banking and finance. Working my way through college involved a random series of not-so-chic jobs, from servicing in restaurants to canvassing with hippies for environmental groups. My choice of study as an undergraduate, moreover, was not exactly what most parents would consider propitious vis-à-vis the job market, because I majored in both English and Spanish with a concentration in literature (‘Spanglish lit,’ as I called it). While the majority of my peers were pursuing degrees in computer science and business management, I was hanging out in cafes reading Shakespeare and Cervantes. I had an irrational passion for literary and philosophical works of art, and I still do. Aesthetics and philosophy continue to make up two queer side passions of mine.

Unlike many graduates, however, I do not consider my liberal arts education a waste of time—i.e., not applicable to the everyday world of work. Following my graduation and an almost Sisyphean round of advertising myself to employers, a manager at a corporate bank decided to hire me for reasons I do not understand to this day. Nevertheless, my studies in language arts proved competent for business communication. After some time in financial sales and banking services, I advanced to become a technical analyst, processor, and communicator in the industry. Looking back on school, I can say what is obvious to students today, which is that many professors of the liberal arts fail to connect aesthetic and philosophical concepts to everyday, working experiences. But now I also can say the near reverse, that business research often does not involve enough aesthetic and philosophical reflection. Since I do not consider liberal education opposed to practical experience, this article will be a pragmatic exercise in restoring some balance between the two, a kind of applied liberal arts. My topic is business communication, or more specifically technical communication, and after reviewing some theoretical background I will show how it has enriched my own professional practice.

The field of technical communication usually functions in work environments sustained by Information and Communication Technologies (ICTs), an umbrella term for technologies that store information and transmit data between people, from phone lines to computer networks. For that reason, research in this field typically concentrates more on technical facts than on aesthetics or philosophical values. It is safe to say, for example, that the majority of studies in technical communication and information technologies are methodological, employing surveys, focus groups, or usability tests to gather data and draw patterns for professional objectives. These professional studies in communication and technology are, in short, highly technical, and they show up regularly in journals like Technical Communication. There is, however, less deliberative research that explores the aesthetic ideas and philosophical values behind such
studies. Fewer researchers, in other words, have evaluated the communicative arts and the business philosophies that underlie technological practices in technical communication. A near exception is the institutional economist John Kenneth Galbraith, who understood that technical arts of persuasion and technological forms of communication always embody philosophical assumptions that characterize modern business. One of the most indispensable of these assumptions is what Galbraith named the “technostructure” (Galbraith, 2007, pp 88).

To define the “technostructure,” Galbraith infamously showed that an increasing segment of modern business no longer runs on entrepreneurial companies that own capital. Instead, mature political economies are constituted more by managerial corporations, which, unlike classical entrepreneurs, try to control market uncertainties through technological planning and communication, including interdisciplinary activities like advertising, marketing, and group decision making through committees of technical experts. Most business decisions are planned and communicated not by individual entrepreneurs, company owners, or stock holders but by technocrats in upper-middle management, where “intelligence is the decisive factor of production” (86). Since this intelligence often works with ICTs such as phones, e-mail, or audio systems, Galbraith reasoned that advanced technological economies require practical arts of persuasive communication to function effectively. The professional requirements of modern industrialization, believed Galbraith, “reflect the need of the technostructure for administrative, coordinating and planning talent, for scientists and engineers, for sales executives, salesmen, those learned in the other arts of persuasion” (295).

It follows that the business environments composed of ICTs embrace a new sort of conventional wisdom: older market philosophies like those of Adam Smith, David Ricardo, and most recently Thomas Friedman—blind faith in an ‘invisible hand’ that creates ‘competitive advantage’ through perfect competition—get replaced by the newer conventional wisdom of the technostructure, in which enterprise is run not by entrepreneurs but by managerially assigned groups of technical experts who plan and communicate with technology—not primarily to maximize profit but to secure the growth of big business.¹ As Galbraith suggests, this new conventional wisdom has implications for business practices, including those of technical communication, since technostructures now situate how professionals plan and communicate technical knowledge with ICTs.

The practice of planning and communicating, or communicative planning for short, that characterizes the technostructure can help contextualize the meanings of ‘technical’ and ‘technology,’ particularly when supplemented with a well developed philosophy of communication. I argue that Galbraith’s institutional economic analysis, at least as it pertains to technical communication via ICTs, is best complemented by the philosophical thought of Ludwig Wittgenstein and the American pragmatists. (Institutional economics, started by Thorstein Veblen and developed by later economists like Galbraith, stresses the social

¹ As Joseph Stiglitz has put it, “What Galbraith understood, and what later researchers (including this author) have proved, is that Adam Smith’s ‘invisible hand’—the notion that the individual pursuit of maximum profit guides capitalist markets to efficiency—is so invisible because, quite often, it’s just not there” (Stiglitz, 2006). For Stiglitz’s take on how the communicative flow of information affects markets, see his work on “information asymmetry,” for which he shared the Nobel Prize in economics (Stiglitz, 2002).
psychological factors of business institutions on market behavior, as opposed to reducing consumer and producer decision making to an abstract formula; pragmatism is an intellectual tradition that emphasizes the practical value or application of philosophical ideas.) Wittgenstein and pragmatists like Charles Sanders Peirce, Williams James, and John Dewey all developed a philosophy of communication and practical meaning—Wittgenstein loosely can be considered a pragmatist for all practical purposes here.\(^2\) Indeed, pragmatism can be seen as philosophy that justifies communicative arts of persuasion and planning, which are traditionally rooted in rhetorical practices going back to Antiquity. As Robert Danisch insists, “classical rhetoric shares an orientation to the world with American pragmatism . . . the intellectual commitments they articulate can be understood as arguments for the necessity of rhetoric (Danisch, 2007, pp 19). Since technical communication is more or less a contemporary form of practical rhetoric, pragmatic philosophy can add to this professional field. Namely, pragmatism contributes to a business philosophy that enriches the meanings of ‘technical’ and ‘technology’ as these terms apply to professional communication.

To understand the pragmatic meanings of terms like ‘technical’ and ‘technology’ in professional communication, it is necessary to understand pragmatism’s approach to communicating meaning in general. For pragmatists, meaning—i.e., linguistic meaning—is equivalent to the practical use of language. As Wittgenstein argues, words always entail practical activities with other people in common ways of life, and so the meanings of those words depend on how they are used in life activities. The meaning of the word ‘business,’ for example, is not a definition set in stone but a polysemous term that depends on context: ‘business’ in a sentence like “She owns a business” differs in meaning from the idiom “That’s none of your business”; and ‘business’ connotes a slang meaning in the cinematic character Michael Corleone’s famous line “Don’t ask me about my business” or in the popular song “Business Time” by Flight of the Conchords. The significance of such a word depends on its use. Like Wittgenstein, the pragmatists saw meaning as the practical use of language inherent in everyday experience. Therefore, the truth of any statement links up to its verified use in experience. As James typically puts it, the truth of a statement essentially comes down its verification. In other words, if meaning is the use of words in context, then truth is the verification of meaning through experience.\(^3\) With this philosophical framework of meaning as practical use and truth as experiential verification, the pragmatist tradition can illuminate the meaning of technology as it relates to technical communication in the technostructure. Before proceeding to pragmatism’s conception of technology and technical communication in this light, however, it will be useful to put overlapping philosophies from intellectual history into focus.

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\(^3\) See Appendix 1 for a more detailed discussion about meaning and truth in pragmatism.
The philosophical meanings of technologies: some historical overview

“We’re living in topsy-turvy times, and I think that what causes the topsy-turvy feeling is inadequacy of old forms of thought to deal with new experiences.”—Robert Pirsig (2006, pp 212).

The philosophical meaning of technology was intuited by Martin Heidegger, who in “The Question Concerning Technology” understood the essence of modern technology as “enframing” (Gestell), or the technique of isolating an entity in nature as a “standing reserve” (Bestand) to be stored for ordered utility, which is similar to a “stock” (Heidegger, 1977, pp 298). Heidegger illustrates enframing with the example of the hydroelectric plant, which isolates a river and objectifies it into a mere power supplier. This kind of transformation “sets upon nature . . . in the sense of challenging it . . . This setting-upon that challenges the energies of nature is an expediting . . . Yet that expediting is always itself directed from the beginning toward furthering something else, i.e., toward driving on to the maximum yield at the minimum expense” (296-297). In other words, modern technology is an expedient way of relating to the world by objectifying natural entities as if they were isolated objects, specifically by calculating them as austere resources. The danger here is that humans may enframe themselves too as just another collection of resources to be stored, transforming themselves into “human resources.”

“As soon as what is unconcealed no longer concerns man even as object, but exclusively as standing-reserve, and man in the midst of objectlessness is nothing but the orderer of the standing-reserve, then he comes to the very brink of a precipitous fall, that is, he comes to the point where he himself will have to be taken as standing-reserve.”

To escape this demeaning fate, “man, precisely as the one so threatened, exalts himself to the posture of lord of the earth” (308). With little or no organic relation to the whole of life, enframing can only disclose human beings as separate, dominating masters of nature.

Enframing, the essence of modern technology (emphasis on modern here), Heidegger points out, ignores the original meanings of technology: “technikon means that which belongs to techne . . . techne is the name not only for the activities and skills of the craftsman, but also for the arts of the mind and the fine arts. Techné belongs to bringing-forth, to poiesis; it is something poetic.” Moreover, “the word techne is linked with the word episteme. Both terms are for knowing in the widest sense” (294). The wider senses of technical knowing in poetic or artistic ways do not often surface in the modern understanding of technology. To return us to these more eclectic qualities of intelligence, Heidegger basically proposes not giving modern technology a monopoly on world-disclosing activities, which also should include poetry and art: “There was a time when it was not technology alone that bore the name techne. Once that revealing which brings forth truth into the splendor of radiant appearance was also called techne. Once there was a time when the bringing-forth of the true into the beautiful was called techne. The poiesis of the fine arts was also called techne” (315). While modern technology, he reasonably believes, is here to stay, we can and must incorporate technological activities into a broader perspective. Such a perspective would involve aesthetic qualities of life, which can poetically or artistically reveal the organic relations within the whole of nature that human beings inherit by simply being in the world. Thus, a moral Heidegger suggests is that technical
knowledge and technological activities can be parts of a broader quality of life—a theme Dewey will pick up in his discussion of aesthetic qualities of human experience.

Since Heidegger, other prominent thinkers have likewise grappled with the meaning of technology in the philosophical sense. In *Autonomous Technology*, Langdon Winner begins to critique the meaning of technology by stressing its purpose in society and politics. Winner agrees that there is “something wrong in the way we view technology and man’s relationship to it” (Winner, 1978, pp 5). Technology must be seen not as an artifact but as an activity located within particular social relationships. Thus, he defines ‘technologies’ as valuable techniques for producing efficient social activities, especially political organization. This definition allows him to find the characteristics of modern technology in the nexus of social values and power relations. While for Heidegger the central value of modern technology was ‘enframing,’ for Winner it is ‘autonomy.’ Evoking a Frankenstein-like motif, Winner finds that modern technology is “autonomous” in that humans seem to have lost understanding and control over their machines. “To be autonomous” he says, “is to be self-governing, independent, not ruled by an external law or force,” and the rising autonomy of technology coincides with the declining autonomy in human agency (16). The human loss of autonomy over machines likely has been exacerbated by overly narrow professional specialization and acquiescence, since the “self-confidence of the modernizers is merely a guise concealing a strict obedience to the momentum of events” (55). The result can be an unjustified optimism about technological evolution that “deterministically” generates tragic human consequences, a “Pandora’s box” scenario, such as nuclear destruction. Often these consequences are unpredictable, uncertain, or “unintended” (97). Worldwide pollution and the global climate crisis, for instance, may be an unintended consequence of industrial carbon technology.

A crucial insight in Winner’s book is that technology is value-laden and never “neutral” (27-30). If values are inseparable from meanings, and if meanings are inseparable from practical uses or applications, as Wittgenstein and the pragmatists would point out, then even if it were hypothetically possible to view ‘neutral’ technology or technology without human application, for all practical purposes humans never encounter technology apart from application. Furthermore, the valuable application of technology always occurs within particular forms of social activity and historical organization, and so technology cannot be separated from its valuable, contextual uses, whether intended or unintended. This point also is demonstrated by Lewis Mumford in *The Myth of the Machine*, albeit with an emphasis on the social psychology that makes technics and machinery possible. Mumford notes that technics, or tool-making abilities and uses, were fostered by non-technological capacities in Homo sapiens, such as linguistic and artistic competency: “there was nothing uniquely human in tool-making until it was modified by linguistic symbols, esthetic designs, and socially transmitted knowledge. At that point, the human brain, not just the hand, was what made a profound difference.”

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4 Although Winner somewhat distances himself from a material deterministic view of technology: the needs, desires, and choices in the context of “necessity”—environmental conditions that allow for or motivate certain choices—and not “material determinism,” may be a better way to understand technological evolution (71-90). Winner thus distinguishes himself from technological determinists like Jacques Ellul.
Human nature, however, is not enough to produce social technics, Mumford observes. Human culture and semiotics also are essential ingredients for technology:

“Through man’s overdeveloped and incessantly active brain, he had more mental energy to tap than he needed for survival at a purely animal level; and he was accordingly under the necessity of canalizing that energy . . . into modes of living that would convert this energy more directly and constructively into appropriate cultural—that is, symbolic—forms. Only by creating cultural outlets could he tap and control and fully utilize his own nature” (7).

Mumford argues that “the main business of man was his own self-transformation, group by group, region by region, culture by culture” (10). Technology was a social activity that developed within this psychological process of self-transformation by using technical knowledge for societal organization: “every technical advance was intermeshed with necessary psycho-social transformations . . . the emotional communion of rigorous discipline of ritual, the beginnings of ideated communication in language, the moralized ordering of all activities . . . to ensure group cooperation” (163). Following the Neolithic period, new social transformations arose based on large-scale hierarchy, or “civilization,” which Mumford defines as

“the group of institutions that first took form under kingship. Its chief features, constant in varying proportions throughout history, are the centralization of political power, the separation of classes, the lifetime division of labor, the mechanization of production, the magnification of military power, the economic exploitation of the weak, and the universal introduction of slavery and forced labor for both industrial and military purposes” (186).

Civilization uses technology to further itself economically and imperially, giving rise to various kinds of human machines. If a prototypical machine is defined as “a combination of resistant parts, each specialized in function, operating under human control, to utilize energy and to perform work,” then a human labor machine, for instance, “was in every aspect a genuine machine . . . its components, though made of human bone, nerve, and muscle, were reduced to their bare mechanical elements and rigidly standardized for the performance of their limited tasks. The taskmaster’s lash ensured conformity” (191). Mumford cites the social organizations of Egyptian kings in the Pyramid Age of the Forth Millennium as examples of labor machines, which he considers the archetypal human machine (196). In fact, these large-scale labor machines are examples of “the Big Machine” or “the megamachine,” which uses “megatechnics,” or technology and “technical equipment derived from such a megamachine.” That is to say, for Mumford, modern technology is a continuation of megatechnics, or the use of technology for never ending production and imperial expansion of the megamachine, which could be a labor machine “when utilized to perform work on highly organized collective enterprises” or a military machine “when applied to acts of collective coercion and destruction” (188-189). When civilization created and expanded bureaucratic connections between these human machines and the sources of political and economic power, it made use of communicative megatechnics. The bureaucracy, Mumford believes, might be called a
“communications-machine” because it uses communication technologies to stabilize and further the development of civilization (201).

In addition to Mumford’s congruence with Heidegger and Winner, who saw technologies not as artifacts but as valuable activities contextually located in social relationships, there are parallels between Mumford’s study of civilization and Galbraith’s analysis of economic institutions. Just as Mumford points out that technology, including communication technologies, originated within the semiotic contexts of language use and the developmental goals of social organization and expansion, modern ICTs developed in the context of professional communicators working within the business goals of the technostructure, which likewise involves communicative planning and secure expansion. Furthermore, the parallels between these thinkers share a similar intellectual orientation with the pragmatists, because Galbraith’s institutional economics had historical connections and philosophical affinities with pragmatism: institutional economics roughly began with Thorstein Veblen, who studied under Peirce and in several instances worked with Dewey; and institutionalism, like pragmatism, insisted on the powerful role of communicative planning and technical knowledge, which is vital in technologically run managerial corporations or technostructures. Pragmatism, accordingly, can make a theoretical contribution to understanding the technological business of technical communication. Evoking Wittgenstein, we can look at how technical communication presently uses the word ‘technology’ in business contexts; and with the help of Dewey, we can analyze the practical consequences of technology, including its aesthetic dimensions. Ultimately, pragmatism can help reveal that the meanings of ICTs in technical communication relate to how professionals in business technostructures value and use technologies for communicative planning.

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5 On a side note, Galbraith may have anticipated the trend of business expansion that has created the ‘too-big-to-fail’ corporation: “The most obvious requirement of effective planning is large size. This . . . allows the firm to accept market uncertainty where it cannot be eliminated; . . . it is very nearly indispensable for participation in that part of the economy characterized by exacting technology and comprehensive planning” (Galbraith, 2007, pp 91). This trend means that planning should take into account the limits of expansion.

6 Although a noted difference may be that while pragmatists like Dewey believed that such communicative planning in business should become participatory, democratic processes, Galbraith was more skeptical as to the extent corporations could be democratized (Waligorski, 2006, pp 160-161).
Pragmatic technologies: linguistic and aesthetic dimensions behind technical communication

“Because the soul is progressive, it never quite repeats itself, but in every act attempts the production of a new and fairer whole. This appears in works both of the useful and fine arts, if we employ the popular distinction of works according to their aim either at use or beauty. . . . Beauty must come back to the useful arts, and the distinction between the fine and the useful arts be forgotten.”—Ralph Waldo Emerson (1950, pp 305-314).

To identify the meaning of ‘technology,’ we can start by looking at the word etymologically, deriving the ‘discourse’ (-logia) of ‘artful skill’ or ‘technique’ (techno-). Technology denotes the skillful execution of practical knowledge for some discursive activity in society—the keyboard I type on, or the pen and paper I use to write with if away from my computer, affords the skillful execution of professional writing that contributes to scholarly discourse. Technologies thus embody technical skills. To understand what ‘technical’ means, we can inquire in a Wittgenstein-like fashion and look at how that word is used in business contexts. In fact, the etymological derivation of ‘technology’ shares much in common with the linguistic pragmatics of ‘technical.’ Linguists have found that the colloquial use of ‘technical’ signifies a skill or expertise, which can be seen in the different uses of ‘technically speaking’ versus ‘strictly speaking’ or ‘loosely speaking’: ‘strictly speaking’ and ‘loosely speaking’ connote truth conditions where words narrowly or broadly fit a corresponding world picture (e.g., Strictly speaking, Ronald Regan was not a rancher, although, loosely speaking, he conveyed a partial ranch life, which provided him a tax shelter); in contrast, ‘technically speaking’ means that a relevant body of experts or skilled professionals can qualify an assertion or statement, which they base contextually on practical knowledge (Technically a TV is a piece of furniture for the moving industry, but for the insurance industry a TV is not technically a piece of furniture) (Lakoff, 1987, pp 121-125).

Therefore, something ‘technical’ involves practical arts and techniques that require learning from professional experts in traditional activities—kinds of know-how, “tacit knowledge,” in Polanyi’s social psychological sense (Polanyi, 1966, pp 3-25). These traditions also can transform into institutional “discourses,” in Michel Foucault’s sense as socially regulated systems of “knowledge formation,” in which apparent unities and discontinuities of traditions “are always the result of a construction the rules of which must be known, and the justifications of which must be scrutinized: we must define in what conditions and in view of which analyses certain of them are legitimate; and we must indicate which of them can never be accepted in any circumstances” (Foucault, 1972, pp 25-26). The word ‘technical,’ then, implies both practical techniques, or know-how arts and skills, and discursive traditions, or institutional systems of thought.

If technical knowledge indicates both practical knowledge from skillful arts or techniques—what the Greeks called techne—and discourses formed out of institutional systems of knowledge—episteme—or practice and theory broadly speaking, then the former and the latter must have a relationship. Some scholars like Raymond Williams often imply that the latter only make sense with respect to the former, as in his critique of theorists like I. A. Richards who construct epistemic or aesthetic theories that do not address the fundamental know-how of embodied, situated activity in human relationships: “where, in what bodies, do reason and confusion operate? Where, in what relationships, are they denied or confirmed? These
questions . . . are bound to lead into the whole complex of action and interaction which is the practice of living, and which cannot reduce to such an abstraction as ‘the contemporary situation’” (Williams, 1983, pp 252). Other thinkers like Foucault theorize that episteme controls the historical conditions for any practice of techne, like a “historical a priori”: “In any given culture and at any given moment, there is always only one episteme that defines the conditions of possibility of all knowledge, whether expressed in a theory or silently invested in a practice” (Foucault, 1994, pp 168). While both approaches ring of truth in many respective cases, a more holistic approach to the relation between techne and episteme comes from Dewey, who insisted on the integrative nature of practice and theory within human experience.

Dewey recalled in Experience and Nature the historical fact that “Experience, with the Greeks, signified a store of practical wisdom, a fund of insights useful in conducting the affairs of life.” Hence, Dewey says, “experience is exemplified in the discrimination and skill of the good carpenter, pilot, physician, captain-at arms; experience is equivalent to art” (Dewey, 1958, pp 354). In other words, art is a paragon of integrative experience, which is aesthetic and at the same time practical—practical in that the aesthetic experience is both a practice and a useful activity for attaining some level of self-realization, adjustment, or adaptation. “Art in being,” explains Dewey, “may be defined as an esthetic perception together with an operative perception of the efficiencies of the esthetic object” (375). Therefore, in the primal experience of life, there is no dichotomy between techne and episteme to begin with: “Thus would disappear the separations that trouble present thinking: division of everything into nature and experience, of experience into practice and theory, art and science, of art into useful and fine, menial and free” (358). In the events of everyday human experience, techne has a dialectical relation with episteme, theory comes from but in turn modifies practice and vice versa, and science is a kind of art, the scientific method being “the art of constructing true perceptions,” or “valid cognitive perceptions,” in line with the pragmatist theory of truth as practical validity (379).

Understanding science as a kind of art, moreover, means that technology, an application of science, is also a kind of art. Technology is an industrial or “useful” art (377). Indeed, techne signified knowledge for both art and technology during Antiquity. Collapsing the artificial dichotomies that haunt philosophy, Dewey reasons, “the only distinction worth drawing is not between practice and theory, but between those modes of practice that are not intelligent, not inherently and immediately enjoyable, and those which are full of enjoyed meanings” (358). For Dewey, the reciprocal relation between techne and episteme creates aesthetic qualities that function in human intelligence to produce integrative experiences. These experiences may be artistic or scientific, which are only artificial demarcations by matter of degree but by no means absolute distinctions.7

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7 Dewey later defines the aesthetic quality of human experience as an expression of perceptual unity through an artistic medium, which imaginatively integrates several dimensions of intellectual, emotional, and material values and meanings. In this unifying experience of art, the “‘artistic’ refers primarily to the act of production and ‘esthetic’ to that of perception and enjoyment” (Dewey, 1934, pp 48).
By integrating *techne* and *episteme* into aesthetic qualities that play into human intelligence, Dewey argues that technical knowledge does not exist simply for its own sake, as in art for art’s sake. All knowledge comes from and is for experience. In *Art As Experience*, Dewey stresses that knowledge and ideas are cognitive tools for making artful decisions on practical or theoretical matters, leading to either normative or novel experiences. In his words, ideas are “instrumental” to the mind just as tools are to the hands. “Instrumental,” however, should not connote a mere mechanical means to some productive end but a conceptual aspect of active living that is not separate from sensorimotor perception or emotion (Dewey, 1934, pp 145). Ideas are instrumental to bodily, affective action in the world, because actions embody conceptual patterns, emotional signals, and socially embedded frames of reference. Just as science is a kind of art, knowledge is really a kind of experience that has to do with interaction in the world. Since this experience involves techniques, producing technical knowledge is a special case of creating artistic knowledge, or aesthetic experience. Technology is a kind of art. It is an industrial art: “Objects of industrial arts have form—that adapted to their special uses. These objects take esthetic form, whether they are rugs, urns, or baskets, when the material is so arranged and adapted that is serves immediately the enrichment of the immediate experience.” A technology is a work of art when its “form is liberated from limitation to a specialized end and serves also the purpose of an immediate and vital experience” so that “the form is esthetic and not merely useful” (121). Dewey sees technical knowledge in technological activity as a special case of artistic knowledge in aesthetic experience.

It is important to emphasize that aesthetic qualities of experience are not merely idealistic. They are instrumental or practical in that they are useful for harmonizing intelligent experiences among human beings in a society. Aesthetic qualities that characterize intelligent experience arise in the mingled psychosomatic and social aspects of human nature, which engage the potential ways organisms can interact with one another in their environment to transform material and express themselves ideally to a degree. For every human organism, aesthetic emotions and intentional ideas, artistic feeling and scientific reason, values and facts, and ideals and actualities are never disconnected in this process of expression; nor are these subjective emotions, values, ideas, and ideals separate from the material objects that give them exigence. They are all interrelated constituents in artistic or technological practices of material transformation and self expression: “the inner material of emotion and idea is as much transformed through acting and being acted upon by objective material as the latter undergoes modification when it becomes a medium of expression” (79). When art and technology are aesthetic experiences that mediate expression, the intelligent qualities of knowledge take communicative forms, making them inherently social. The epistemology of aesthetic

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8 Since knowledge experientially arises out of our embodied interaction with the world in which we are embedded, Dewey often referred to knowledge processes as “transactive,” or what some cognitive scientists today call “enactive” (Johnson, 2007, pp 274).

9 Because of this experiential process of joint ideal and material transformation and expression, Dewey retained the term “work of art” to distinguish the artistic process from an “art product,” or a ‘text’ as literary theorists today like to say (Dewey, 2005, pp 168-169). Dewey did this to emphasize that art is an activity that involves several levels of interaction that do work to create an expressive and transformative experience.
experience is thus a social epistemology, one that necessitates communication with the other, including communication of technical knowledge.

What Dewey’s aesthetic theory shows is that art and technology ideally function in social epistemology as participatory modes of communication: “Every art communicates because it expresses . . . Communication is the process of creating participation” (253). Artistic and technological modes of communication become pragmatic technologies by promoting societal cooperation. In this way they are moral: “Instruction in the arts of life is something other than conveying information about them. It is a matter of communication and participation in values of life by means of the imagination, and works of art are the most intimate and energetic means of aiding individuals to share in the arts of living” (350). The moral function of art and technology revolve around communication so that “art exercises its humane function” (360).

Dewey’s insights on the aesthetic and moral functions behind communication, technical knowledge, and technological practices could greatly benefit business philosophy, especially the technological profession of technical communication. A philosophical challenge for technical communication is when its technological aspects are too heavily influenced by the value of efficiency and the ethic of expediency. Like Heidegger, Jacques Ellul noticed the emergence of this challenge for communication when he said in The Technological Society that “absolute efficiency” of technique characterizes technology (Ellul, 1967, pp xxv). Ellul said of society that the technological “multiplicity of means is reduced to one: the most efficient” (21). Similarly, in the “The Ethic of Expediency” Steven Katz demonstrates the moral problem of technical communication when it is executed solely out of expediency—that is, only for the sake of advancing a technological program as efficiently as possible. According to Katz’s analysis, the ethic of expediency arises out of an epistemology of objectivity, which isolates both subjects and objects in communication as mere means to some end. In the Just memo of the Third Reich, for example,


While the Just memo is a salient but extreme example, Katz argues that it is the logical result of an ethics based too much on pure efficiency of technique. He also raises caution that much of modern technology, as Heidegger previously pointed out, is also based on a technique that ‘enframes’ nature, objectifying everything into ‘standing-reserves’ for narrow uses vis-à-vis
mechanical systems. Ethical critiques of technological expediency also have been central in pragmatist approaches to technology and technical communication.\(^\text{10}\)

For instance, Dewey’s instrumental philosophy, which may be called pragmatic instrumentalism, eliminates the ethic of expediency. In Dewey’s pragmatic technologies for technical communication, aesthetic qualities become fundamental to communicative experiences. These qualities make communication fundamentally moral in nature. How, then, do pragmatists like Dewey define technology? In \textit{Philosophical Tools for Technological Culture}, Larry Hickman draws upon Dewey to reformulate a pragmatic definition of technology, which is technology “in its most robust sense.” Pragmatic technology “involves the \textit{invention}, \textit{development, and cognitive deployment of tools and other artifacts, brought to bear on raw materials and intermediate stock parts, with a view to the resolutions of perceived problems}” (Hickman, 2001, pp 12). Put simply, pragmatic technologies are tools for solving problems, such as scientific problems. Since problem solving usually modifies existing knowledge or creates new knowledge, pragmatic technologies are tools that reconstruct technical knowledge. Pragmatic technologies do not just automate or reiterate facts. They help change or create information to solve problems.

To distinguish the technological from the technical, Hickman says, “What is technological involves cognitive or deliberative inferential activity, whereas what is merely technical is generally and for the most part habitual. It is non-cognitive or non-inferential” (17). In other words, technical knowledge does not come from inquiry or inference. Instead, technical knowledge is information that arises out of habitual skills, or \textit{techne}. Electricians have technical knowledge about electricity that comes from their skills with conductive wiring, and writers and editors have technical knowledge about grammar that comes from their skills with language. According to Hickman, “activities deserve to be called ‘technical’ in the sense that they involve skilled, instrumental engagement with something artificial” (16). Skills, of course, are learned and developed in a cultural setting that promotes a discursive tradition, or \textit{episteme}.

In pragmatist-inspired business communication, then, the ‘technical’ signifies habitual skill (\textit{techne}) that is typically learned reflectively in and for discursive traditions (\textit{episteme}), making \textit{techne} and \textit{episteme} mutual aspects of aesthetic experience. The ‘technological’ signifies intellectual inquiry and philosophical reconstruction of technical knowledge, which may be done scientifically or methodically with tools. Just as artistic skill and discourse express aesthetic experience, technical knowledge communicates technological activity—technical knowledge from technological activity being a special, scientific case of artistic skill in aesthetic experience, since science is the art of constructing verified perceptions. This reformulation of technology’s significance is analogous to Dewey’s pragmatic instrumentalism. For Dewey, the ‘technological’ often indicates the same as the ‘instrumental.’ Hickman clarifies this semantic conflation:

\(^{10}\) See \textit{Appendix 2} for more on pragmatism’s contribution to the philosophy of technology.
Dewey at times called his general method ‘instrumentalism,’ and at other times he used the term ‘technology.’ Since the terms ‘technical’ and ‘technological’ are also utilized to refer to methods that are ancillary to the general method of inquiry, his equivocal use of these terms has been a source of considerable confusion . . . Dewey’s contention [was] that every successful inquiry involves the invention, development, and cognitive deployment of tools and other artifacts, brought to bear on raw materials and intermediate stock parts, with a view to the resolution of perceived problems. This process may involve the concrete, tangible tools and artifacts normally associated with hardware technology such as that involved in the plastic arts and engineering, but it may also involve the conceptual tools and artifacts that do their work at more abstract levels of operation, such as in the musical arts and mathematics. Dewey’s definition of inquiry is thus more or less his definition of technology in its broadest sense (81).

Dewey’s instrumentalism, pragmatic technology, and aesthetic and moral philosophy of technical communication break from previous Enlightenment and Positivist thought. Old Enlightenment and Positivist philosophies held that the universe could be technologically measured in completely objective ways, as if social values and subjective frames of reference did not matter a lot, and that technical knowledge was finite in nature, as if each scientifically solved problem just indicated one fewer to be solved. These philosophies were preoccupied with discovering metaphysical foundations for technical knowledge that could be technologically quantified. Ironically, these overly skeptical, materialistic worldviews assumed an almost teleological faith in social progress, mostly through technoscience’s exploitation of a Newtonian, machine-like universe that could be manipulated to conform to human desires. These views also had little or nothing to say about aesthetics and values.

Dewey praised the learning that Enlightenment and Positivist technosciences accomplished, such as empirical verification and experimentation. Dewey’s instrumental philosophy of technoscience, however, differed in many ways. He took seriously James’ radical empiricism, which held that subjective in addition to objective dimensions of experience are inseparable from empirical facts. Both subjectivity and objectivity contribute to understanding. Dewey’s fallibilism, inherited from Peirce, insisted that metaphysical certainty is impossible. Technoscience can only experiment via methodical inquiry in limited contexts, thereby affording statistical probabilities but not absolute certainty of knowledge. Dewey also insisted that technological progress in civilization is not linear or teleological. Instead of teleological progress, Dewey assumed Darwinian evolution, in which human beings are a part of nature. Since people must do business with other parts of nature to which they are evolutionarily interrelated, Hickman notes, “there are grounds neither for rigid compartmentalization of the various areas where cognitive work is done, such as the technosciences, the arts, the law, and engineering, nor for a severing of facts from values within any of these areas of inquiry” (102).

For Dewey, technoscience is a kind of social intelligence that states methods for solving problems with tools. It is not separate from art, which expresses aesthetic and ethical experiences. Nor are technoscience and art separate from philosophy, which is deliberative criticism about social intelligence in general—inquiry based on hypotheses modified by experimental feedback in the continuous reconstruction of knowledge (see Figure 1).
Dewey’s pragmatic technology, in conclusion, is about using tools for inquiry and problem solving, which make technical communication and business planning possible. Pragmatic technology entails a philosophy of communication, deliberation, and problem solving. A moral brought forth from this philosophy is that technical knowledge through technological modes of communication can contribute to broader experiences or qualities of life. This broader experience has aesthetic and moral dimensions, rendering pragmatic technologies and technical communication into business methods and techniques that engender consummate forms of social experience. In this aesthetic experience, facts embody human values and technological means cannot be disconnected from planned ends, which Dewey calls “ends-in-view” (Dewey, 1958, pp 101). Pragmatic technologies can enrich modern business practices in technical communication because, as Galbraith reminds us, modern business is very much about communication and planning. There exist, therefore, practical points of convergence between pragmatic technologies for technical communication and the technostructure’s implicit business philosophy of communicative planning. As pragmatic technologies, ICTs have a philosophical meaning in technical communication that relates to how professionals in technostructures value and use such technologies for planning. The moral significance of ICTs concerns how the technostructure applies them for planning business in ways that are compatible with or contribute to the wellbeing of the workplace and greater society.
Pragmatic ICTs and the technostructure: uncertainties from technological interconnectivity

“... every person, place and thing in the chaosmos of Alle anyway connected...” —James Joyce (1999, pp 118).

Dewey’s pragmatic technology integrates methodical inquiry with technical communication, and this integration is important for planning in a business world that is moving toward uncertain stages of globalized interdependence. As globalization barely began during the last century, Peter Drucker already pointed out the importance of “knowledge workers,” or professionals who plan, manage, and communicate social information (Drucker, 1986, pp 40). These workers initiated what is now called ‘knowledge management’ in business planning, and knowledge management has prompted ongoing technological consequences. When business developments grow more complex, information in technical communication becomes more compounded, but so too do ICTs necessarily become more complicated. For example, on a local level, many professionals still participate in interpersonal communication and interdepartmental collaboration using conventional technologies, including phones, e-mails, written documents, and slideshows for face-to-face or group meetings. On a transnational level, however, they also may use a variety of technological media to communicate globally through virtual milieus, such as computer-mediated communication in the form of audio or video conferencing. International business brings the challenge of communicating across vast geographic distances and over distinct time zones, but it also introduces challenges to technical communication, like intercultural translation and interpretation, diverse social psychologies, and ranges of tacit and explicit knowledge. This diversity of knowledge requires an assortment of ICTs for technical communication, because different types of ICTs may or may not be more apt for sharing certain kinds of information, depending on the cultural or economic task at hand. ICTs such as electronic repositories, computer databases, and search engines are good for storing or recalling unambiguous information by codifying it into ‘bits,’ storing knowledge like a commodity for convenient access. Other ICTs like e-mail, phones, and virtual conferencing are better for contributing to ongoing dialogue in social environments, where people create and interpret complex information. Either way, ICTs connect professionals across the globe to pursue the latest inquiries in business, and these inquiries can entail a combination of ICTs to exploit both traditional and virtual modes of technical communication. The result includes not just more demanding inquiries dealing with market uncertainty but also greater levels of social and global interdependence, giving rise to technological interconnectivity.

Here I insist the term ‘interconnectivity’ is more appropriate than ‘interconnectedness.’ Interconnectivity indicates a complex system with uncertain results, while interconnectedness implies balanced relations with ideal competition. Technological interconnectivity creates an uncertain world of incomplete knowledge and hence sudden or unexpected innovations in technology, generating many unpredictable events, or ‘Black Swans,’ to repeat Nassim Nicholas Taleb’s coinage. As Taleb has succinctly argued, “Prediction requires knowing about technologies that will be discovered in the future. But that very knowledge would almost automatically allow us to start developing those technologies right away. Ergo, we do not know what we will know” (Taleb, 2010, pp 173). Unpredictable technologies lead to butterfly effects in business planning, in which “extremely divergent results” cause “a severe multiplicative effect where the error grows out disproportionately” (177). The illusion of technological
interconnectedness, on the other hand, implies using technology to make a “new, flatter, global playing field,” to use Thomas Friedman’s idiosyncratic phrase. This new “flat world” is supposedly where businesses “moved from largely vertical means of creating value to more horizontal ones,” which “actually helped flatten the world” (Friedman, 2007, pp 202-203). Freidman believes that technologies are “steroids” that accelerate this flattening of the business world (187). In this technologically flattened world, competition should be guided by Smith’s ‘invisible hand’ and encourage what Ricardo calls “competitive advantage,” where each country specializes in a business and trades its specialized goods or services with other nations, creating near perfect market competition and balanced commerce (263-264). If technological interconnectedness, epitomized by Friedman’s ideas, characterizes the global business environment, then we can forget about Galbraith and return to Smith’s faith in the invisible hand and Ricardo’s confidence in competitive advantage; but if businesspeople live in a more uncertain world of technological interconnectivity, exemplified through Taleb’s analysis, then its digital consequences will take on far less predictable outcomes that demand more methodical inquiry.

Both Taleb’s analysis and Freidman’s ideas, however, are empirical claims, so they can be assessed by looking at specific cases. Digital innovations in statistical technologies within financial industries, for instance, allowed non-traditional lenders to leverage new Collateralized Debt Obligations based on subprime loans, but these same technologies did not predict the Housing Crisis of 2007-2008, the subsequent Great Recession, and consequential disparities of wealth and competition. Likewise, innovations in web-based technologies gave rise to profitable social media, but these same technologies helped lead to unpredictable imbalances or unrest in societal life, from Internet addiction in the USA to Facebook’s role in the Arab Spring. In such cases, Taleb’s analysis has passed more empirical scrutiny than Friedman’s. While technological interconnectivity in an uncertain world calls for methodical inquiry and communicative planning in business, this inquiry and planning must acknowledge the limits of knowledge: from known knowns (explicit knowledge) and known unknowns (tacit knowledge) to unknown knowns (uncertain possibilities) and unknown unknowns (unpredictable ‘Black Swan’ events). “The lesson of probability holds for all forms of activity as truly as for the experimental operations of science, and even more poignantly and tragically,” remarks Dewey in The Quest for Certainty. “The control and regulation of which so much has been said never signifies certainty of outcome . . . The unknown surrounds us in other forms of practical activity even more than in knowing, for they reach further into the future, in more significant and less controllable ways” (Dewey, 2008, pp 245). A challenge for technical communication, therefore, is the issue of technological interconnectivity and its uncertain effects on knowledge management.

Not surprisingly, much professional research has studied how ICTs have helped shape technological interconnectivity with uncertain variables in knowledge management. In technical communication, many of these variables center on human factors. In a study by Keri Stephens, who defines ICTs as “technologies that handle information and enable communication among human actors,” the applications of ICTs are contingent on human factors, which can comprise of social variables (e.g. group norms, social psychologies, or
cultural contexts), organizational idiosyncrasies (e.g. job categories, business roles, or company positions), and individual dispositions (e.g. personalities, education attainments, or professional levels of experience with ICTs). To understand the dynamics between human factors and ICTs, Stephens makes a case for “ICT Succession Theory,” or “IST,” which holds that “ICT use is socially constructed over time.” IST classifies ICTs by their functional uses because “Successive ICT use likely varies by task type, and within the context of organizational ICT use, there are several major types of tasks” (Stephens, 2007). Since collaboration in business usually involves many tasks, no individual ICT can entirely fulfill a job function, and so professionals often use varieties of ICTs to construct many levels of social interaction. In field studies by Rob Anson and Bjorn Munkvold, ICTs for social interaction build on locality and temporality, in which distinct places and times motivate different ways of using ICTs: four potential “modes” of interaction are same time, same place, different time, and different place (Anson and Munkvold, 2004).

In addition to human factors and local and temporal aspects of business, ICT uses also depend on shared values and collective visions—what Emile Durkheim would call “collective consciousness” (Durkheim, 1997, pp 38). In a study on audio and video conferencing, Liaquat Hossain and Rolf Wigand reveal that ICT uses in virtual communication depend on types of strategic management that promote cooperative values and shared visions. Video and audio conferences work better in collaborative situations that promote team trust. “Virtual collaboration” is a new kind of social interaction, which Hossain and Wigand define as “ICT-enabled collaboration for geographically dispersed groups with no or very little face-to-face communication” (Hossain and Wigand, 2004). In all these studies, ICTs help construct multiple levels of interaction, contributing to social interdependence with technological results that are not always predictable. That is, ICTs and their human factors, local and temporal aspects, and social values create business environments of technological interconnectivity. Technological interconnectivity, here defined as technologically connected systems of complex interaction with consequences not fully predictable, is a tendency in technical communication that is not likely to cease. Dewey’s pragmatic technology is suited to deal with this trend because pragmatic technologies entail methodical inquiries, communicative planning, and resilient knowledge management to face market uncertainty.

Pragmatic ICTs, which I define as ICTs that reconstruct technical knowledge through inquiry and problem-solving methods, are appropriate for a business philosophy of communicative planning, which requires professionals working in technostructures to continuously manage and revise knowledge in an uncertain world of technological interconnectivity. As Galbraith and Drucker insinuate, technological interconnectivity is a central reason for the emergence of the technostructure and knowledge management with ICTs: managerial corporations and communicative planning are responses to market uncertainties that have been exacerbated by unpredictable technology, globalized interdependence, and imperfect information. Given that technological interconnectivity means interdependence coupled with uncertainty, pragmatic ICTs must contribute to communicative planning in ways that deal with the economic consequences of interconnectivity. These consequences include many social and ethical implications, which we shall explore next.
Ethical communicative planning: mutual interests and improved social habits

“Man, I say, can wish for nothing more helpful to the preservation of his being than that all should so agree in all things that the minds and bodies of all would compose, as it were, one mind and one body; they all should strive together, as far as they can, to preserve their being; and that all, together, should seek for themselves the common advantage of all.”—Spinoza (1994, pp 210, IV P18 S).

Since technical communication as it functions in the technostructure is very much about communicative planning, and since communicative planning deals with an uncertain world of technological interconnectivity, pragmatic ICTs can enrich professional practice in addition to business philosophy. These practices are technological in Dewey’s instrumental sense: professional communication may use a variety of tools for methodical inquiry and theoretical reconstruction of technical knowledge, which emerges from both habitual skill and institutional discourse, or techne and episteme. Technologies are not remote objects. They are handy components of intelligent inquiry that reconstruct technical knowledge. Technological practices can bring in novelty when existing knowledge, even if convenient, becomes inapt or outmoded. This novelty of technical knowledge does not separate technological means from social ends, digital facts from human values, or productive tools from consumptive use, because in the uncertain world where communicative planning takes place, pragmatic ICTs stay yoked to the aesthetic and ethical background of experience. For technical communication in the technostructure, pragmatic ICTs allow for novelty by linking professional practices like communicative planning to social values, promoting what Dewey calls “mutual interests.” In Democracy And Education, Dewey explains how seeking mutual interests can transform business by promoting values beyond mere efficiency:

“Efficiency in production often demands division of labor. But it is reduced to a mechanical routine unless workers see the technical, intellectual, and social relationships involved in what they do, and engage in their work because of the motivation furnished by such perceptions. The tendency to reduce such things as efficiency of activity and scientific management to purely technical externals is evidence of the one-sided stimulation of thought given to those in control of industry—those who supply its aims. Because of their lack of all-round and well balanced social interest, there is not sufficient stimulus for attention to the human factors and relationships in industry” (Dewey, 2004, pp 81).

This “all-round and well balanced social interest” is what Dewey defended as “mutual interest” (82). Finding a mutual interest among businesspeople means an eventual “change in social habit—its continuous readjustment through meeting the new situations produced by varied intercourse” (83). From an institutional economics perspective, changing social habits inevitably changes institutions, because, as Veblen points out, “institutions are, in substance, prevalent habits of thought with respect to particular relations (Veblen, 2008, pp 113). Dewey’s two elements of social values—mutual interest and improved change in social habit—when combined with pragmatic technologies, not only create and communicate technical knowledge; they also make up the democratic ideal in America. “A democracy is more than a form of government,” says Dewey. Democracy “is primarily a mode of associated living, of conjoint communicated experience” (Dewey, 2004, pp 83). By connecting mutual interests and
improved social habits both to technical communication and to the democratic ideal, Dewey believed that business and government could become more ethical and participatory. With respect to reconstructing technical knowledge for communicative planning, whether in business technostructures or in democratic states, it will be helpful to look at a couple cases of pragmatic ICTs in ethical action, and I shall include one from personal experience.

In “Beyond Ethical Frames of Technical Relations,” Steven Katz and Vicki Rhodes adumbrate a Heideggerian analysis of digital technologies in technical communication. Their Heideggerian analysis of digital technologies corresponds to my pragmatic analysis of ICTs. Based on Heidegger’s insights, these technologies always presuppose some kind of moral background or “ethical frame,” which Katz and Rhodes define “as a set of philosophical assumptions, ideological perceptions, and normative values underlying and/or guiding how people relate to and exist with technology” (Katz and Rhodes, 2010, pp 231). The ethical frame of modern technology, however, is eclipsed by what Heidegger describes as enframing, where the “technological ordering of nature and our knowledge of it . . . turns everything into what he calls a ‘standing-reserve.’” Katz and Rhodes note that a lot of technical communication has embraced enframing: “the technical artifact or document is something standing in reserve, ready for use by technology, as technology” (237). To move beyond enframing, they propose an ethical frame based on “human-machine sanctity”: “human-machine sanctity, ideally, would be based on non-technical relations—not on means-end, but on reverence and caring for the whole—it would directly improve relations within your organization.” This sanctity revolves around social relations, and as an example of the sanctity frame they cite Cause Related Marketing (CRM), in which a company promotes its products or services to help raise money for nonprofit organizations. According to Katz and Rhodes, “What is important to note here is that there is not simply one ‘end’ (say, selling products), but multiple ends, and not all of them relations technical (e.g., cancer research, human health, the betterment of society, the greater human good)” (251). CRM thus tries to connect technical communication and digital technologies to mutual interests and improved social habits.

While Katz and Rhodes’ analysis is highly admirable for framing technologies beyond mere technical functions and toward broader social interests, I find their sanctity frame problematic and their CRM example procrustean, at least from the standpoint of institutional and behavioral economics. Since sanctity evokes the feeling of sacredness, typically in close social relations like those of family, kin, friends, or colleagues, a problem with looking at professional practices through the sanctity frame is that business relationships presuppose market relations just as much as social relations. The behavioral economist Dan Ariely gives the following example to illustrate the difference: after Thanksgiving dinner with your in-laws, a gesture of thanks could be giving your relatives either some cash or a gift of equivalent value such as a bottle of wine—although the monetary value for both options is equivalent, the former is not acceptable but the latter is, because one involves “market norms” and the other “social norms.” When market norms get mixed up or confused with social norms, behavior may be interpreted as uncanny or unacceptable, because market norms breach social norms and vice versa (Ariely, 2008, pp 75-91). The business world has both market norms and social norms: market norms almost always characterize customer transactions, and social norms may typify
many worker relationships. Since CRM involves market norms just as much if not more so than social norms, I am skeptical to what extent CRM can be classified as a business practice that embodies the sanctity frame. CRM may be more representative of market norms, such as branding, financial incentives, or marketing prospects. Indeed, legal reviews often have found that CRM is primarily profit motivated (Helge, 2010). In professional practice, the sanctity frame leaves out market norms. An ethical frame in business, however, must take into account both market norms and social norms.

Accordingly, I will provide my own example of pragmatic ICTs for technical communication. It is based on Dewey’s ethics of mutual interests and improved social habits, but it is compatible with both market norms and social norms. Also, as promised at the beginning of my writing, the following example should demonstrate how pragmatic aesthetics and philosophy have enriched my professional practice. In my profession, that of a technical processor and communicator in a bank, I work in the issuance department of a Corporate Trust division, which processes debt securities from the bond market. Besides my department, the division has several interrelated departments, making interdepartmental collaboration and communication key aspects of business. These departments use a variety of ICTs to accomplish their collaborative goals, and a technical error or misunderstanding in one department can affect many others throughout the division. Technological interconnectivity matters greatly. Due to this interconnectivity, management realized that a mutual interest of every department was to have some kind of formal mechanism that would allow for routine assessment and feedback between departments. Management proposed having quarterly surveys and corresponding evaluations, which would let departments regularly assesses one another through constructive feedback on interdepartmental collaboration and communication.

In these quarterly surveys and evaluations, each department would send surveys to the other departments it worked with, asking for feedback through questions like the following: “Did we complete [a specific request] accurately?”; “Did we complete [the request] by the time you needed it?”; “Did we notify you that [the request] was completed?” The answers would be quantified according to three possibilities: “Did Not Meet Expectations”; “Met Expectations”; or “Exceeded Expectations.” After receiving this quantified feedback, each department would have a percentage for how often it met or exceeded expectations for others during the last quarter. In receiving feedback, it was important that the information be both locally applicable to each department and globally meaningful to the entire company division. Therefore, management also decided to categorically qualify all survey questions according to three service values: “Expected Quality Of Work”; “Timeliness Of Work”; and “Client Communication Skills.” At the end of each quarter, departments could see if they did not meet expectations, met expectations, or exceeded expectations in each of these categories, and they also could see how the division performed as a whole when all their results were averaged. The end result would be three charts for each department and three charts for whole division (see Figure 2).
Figure 2: These three charts would be generated for each department, and the three charts for every department would be averaged into three charts for the division as a whole.  

The advantage of this simple survey approach is that it functions as a pragmatic ICT: it reconstructs technical knowledge by improving social habits and advancing mutual interests in

Statisticians like Edward Tufte probably would disapprove of pie charts, since tables and bar graphs are generally better formatted for numerical comparisons (Tufte, 2001, pp 178). However, many managers in my experience still prefer pie charts, so I retained the pie chart format for this example.
technical communication. The survey evaluation connects business goals and ends to collaborative work and means, and it does not separate statistical facts from social values. By uniting means with ends and facts with values, interdepartmental communication functions to enhance ethical collaboration in the company. Indeed, studies in behavioral economics have shown that relating business facts to social values tends to uphold professional ethics. For example, several experiments demonstrate that professionals are less likely to behave dishonestly when engaging in practices that internalize moral values and standards related to their work (Mazar et al, 2008). In sum, survey evaluations as pragmatic ICTs create ethical feedback mechanisms, which advance communicative planning based on mutual interests and improved social habits. The moral value of these ICTs involves the ways technical communicators apply them for business planning so that they contribute to the wellbeing of their workplace and beyond.
It is time to make the ethical philosophy of pragmatic ICTs more explicit before concluding. A legitimate concern for pragmatic ICTs in technical communication is the question of what values or whose standards to use in business planning. In the realm of human values, pragmatic ICTs for technical communication are less about organizational leverage and more about robust inquiry. Redundancy and repetition are more valuable than efficiency. An ethic of resilience replaces the ethic of expediency. Adaptive flexibility is a primary virtue, while expeditiousness is only secondary. But what makes certain values superior to others, and how are these values derived in the first place? What makes robust inquiry better than organizational leverage, and how do those moral values emerge? I argue that pragmatism can respond to these questions more effectively than the modernist or postmodernist theories that tend to dominate academic literature.

Questions of morality in general hinge on questions about conduct toward others in society. As Dewey points out in *Human Nature and Conduct*, “all morality is social,” because “moral judgments and moral responsibility are the work wrought in us by the social environment” (Dewey, 1957, pp 289). Since morality is social in nature, moral values must be derived from practical interactions in the environment. Dewey critiqued philosophical modernism exemplified by figures like Immanuel Kant, who tried to explain moral values or principles as logical functions of ‘Pure Reason’ not subject to interpersonal connections. Kant’s mistake was to justify these principles as if they existed in isolation from human experience, especially the practical consequences from ethical decisions. Dewey says of Kant: “He saw that to exclude from principles all connection with empirical details meant to exclude all reference of any kind to consequences” (226). As a result, Kant ostensibly formalized a universal system of moral principles where “reason becomes entirely empty: nothing is left except the universality of the universal. He was then confronted by the seemingly insoluble problem of getting moral instruction regarding special cases out of a principle that having forsworn intercourse with experience was barren end empty” (226-227). Philosophical modernism thus leaves us with impractical ‘universals’ that can only espouse an abstract morality of ‘universal community.’

As Bernadette Longo summarizes in “Human + Machine Culture,” the postmodernist reaction to modernism was to critique abstract universals, including the universal community, which Jean-François Lyotard interpreted as just a “metanarrative” that legitimized dominant institutions of knowledge. In other words, the metanarrative of universal community makes some kinds of knowledge universally acceptable or unacceptable through social institutions built upon these metanarratives. Philosophical modernism legitimates dominant institutions and discredits others by forcing knowledge to conform to metanarratives and universals. In technical communication, for example, Katz’ critique of the Just memo can be seen as a criticism of the Nazi metanarrative based on the abstract universal of expediency. The Nazi’s universal community and its universal ethic of expediency were in effect tools of domination, not...
morality. Since “technical communication is a technoscientific tool through which value is assigned to knowledge,” Longo concludes:

language based on a technoscientific logic can be used not to join people into a universal community, but instead to evaluate and divide people, thereby identifying undesirable groups to be excluded and eliminated from the community. Similarly, when technical communicators attend only to the utility and expediency of our work, we risk falling into the ethical trap of rational inhumanity in the name of creating universal good. Taken to its logical extreme, the technoscientific ethic of utility/success/expediency brings the progressive modernist project of forming universal community to its end by evaluating and dividing people into localized groups through the application of technical communication (Longo, 2010).

Moreover, the project of forming a universal community, Longo argues, is not only ethically undesirable in practice but also illogical in theory. To even define a community, there must be social acts of both inclusion and exclusion, and so a universal community is basically an oxymoron. Since the universal community as a metanarrative of philosophical modernism did not work ethically in practice or theory, the postmodernist reaction emphasized ‘local communities’ without universals. Technical communication following the postmodernist influence, Longo remarks, is like applied cultural studies: it “can be seen as a language tool that educates native knowledge (or superstition or folklore) into the instrumental knowledge of work so that the person with this instrumental knowledge can operate efficiently within the dominant community’s rules and divisions of labor” (Longo, 2010). In postmodernism, then, we are left with technical and technological practices contingent on local knowledge, which voids problematic universals. Nevertheless, postmodernism develops many moral problems of its own. Other than the obvious problem of cultural and thus moral relativism, postmodernism holds an unrealistic moral philosophy in the context of technological interconnectivity. There is no world of only local communities. Communities function interdependently in a global world, where they connect in unpredictable ways through technology. The actions of one community thus may lead to unintended consequences that affect others. For example, we know that faulty mortgage lending in small states like Alabama can bubble into a financial crisis, which can further spiral into economic crises such as the Great Recession and the Euro Debt Crisis. To use Marshall McLuhan’s phrase, many communities, whether or not they realize it, now function in a common space, a “global village” (McLuhan, 2010, pp 36).

In the context of technological interconnectivity, the ‘universal community’ of modernism and the ‘local communities’ of postmodernism are like the Scylla and Charybdis of moral philosophy. Pragmatism, I would like to argue, leads us out of this philosophical dichotomy, particularly through its espousal of casuistry. From the casuist angle of moral philosophy, pragmatism is a form of post-postmodernism that balances idealism and realism. As Dewey

12 My own view is that pragmatism as post-postmodernism is compatible with metamodernism (the former being primarily philosophical and the latter aesthetic), because both are reconstructive orientations that move between and beyond modernism’s naive universalism and postmodernism’s deconstructive relativism (Vermeulen and van den Akker, 2010).
notes, moral values must be derived from practical interactions in the environment, because morality is always social in nature. Since ethical interactions are contextually specific, the postmodernists were right to the extent that ethical decisions are locally based—e.g., whether or not one should lie depends on the particular situation to distinguish benign white lies from harmful fraud. In a time of technological interconnectivity, however, the modernists were correct in that people should think universally as well—local actions now may have global consequences. Unlike the modernists or postmodernists, however, Dewey did not separate universal principles from local particularities. Ethical decision making is a skill that depends on particular know-how, or what Aristotle referred to as phronesis. Moral values or universal principles, which Aristotle called sophia, always arise from these ethical particulars, not from decontextualized logic. Just as techne has a dialectical relation with episteme, phronesis has the same relation to sophia (Aristotle, 1995, pp 403-405). In pragmatist ethics, moral values can be generalized from particular ethical cases through casuistry. Casuistry is a method of case-based reasoning. It draws parallels between different instances or cases. “Casuistry,” Dewey asserts, “is simply the systematic effort to secure for particular instances of conduct the advantage of general rules which are asserted and believed in.” These rules or principles, however, are not ‘categorical imperatives’ as the Kantian modernist would like to prescribe:

all principles are empirical generalizations from the ways in which previous judgments of conduct have practically worked out. When this fact is apparent, these generalizations will be seen to be not fixed rules for deciding doubtful cases, but instrumentalities for their investigation, methods by which the net value of past experience is rendered available for present scrutiny of new perplexities. Then it will follow that they are hypotheses to be tested and revised by their further working (Dewey, 1957, pp 222).

Through the method of casuistry, pragmatist ethics surpasses the moral problems of modernism and postmodernism because it does not assume a wall of separation between moral values and ethical decision-making experiences; nor does it conclude that the lack of such a wall collapses principles and rules into moral relativism. Moral values, universal principles, or rules are properly derived from making analogies between different ethical cases. For new cases they serve as cognitive instruments to guide or aid further ethical decisions. Since “each moral situation is unique,” Dewey says, “general moral principles are instrumental to developing the individualized meaning of situations.” He also stresses that “Because situations in which deliberation is evoked are new, and therefore unique, general principles are needed” (225). In the context of technological interconnectivity, casuistry allows interdependent communities to negotiate common moral values. An example from the last century could be the Universal Declaration of Human Rights, in which many interdependent nations agreed on upholding universal principles of human dignity. A near future example

\[13\] Dewey’s casuist method of drawing generalizations from analogies between particular experiences is very similar to Wittgenstein’s theory of “family resemblances,” in which “the various resemblances between members of a family” united different “language games” into common categories, however fuzzy the boundaries (Wittgenstein, 2001, pp 27-28, #67). Postmodernists like Lyotard ignore this insight of Wittgenstein, even while trying to base their theories on the apparent “splintering” of Wittgensteinian “language games” (Lyotard, 1984, pp 41).
could be new rules of environmental stewardship to ease the global climate crisis. Common moral values are imperative in the global context of technological interconnectivity, where local decisions of one community can impact other communities economically and environmentally.

Finally, after deriving common moral values via pragmatic casuistry, there is the question of how to prioritize such values. In technical communication, for instance, both institutional robustness and business leverage are clearly important, but which one is more important? Since morals in pragmatic casuistry are instrumental for investigating and deliberating ethical decisions, the answer to this question is an experiential and experimental one: it should typically be a matter of trial and error, because there is never absolute certainty of outcome from any kind of knowledge, including moral knowledge. Casuistry improves rhetorical deliberation about moral probabilities when combined with the pragmatist method of clarifying practical consequences from ethical decisions. Pragmatic ICTs in technical communication, therefore, can make a moral argument for privileging robustness, redundancy, resilience, and flexibility over leverage, efficiency, expediency, and expeditiousness, because communicative planning through the technostructure typically works better in the long term for everybody when the former morals, values, ethics, and virtues are prioritized over the latter. The former, in sum, do a better job than the latter in promoting mutual interests and improved social habits.
Conclusion: a pragmatist philosophy of technical communication

“Doctors keep their scalpels and other instruments handy, for emergencies. Keep your philosophy ready too—ready to understand heaven and earth. In everything you do, even the smallest thing, remember the chain that links them. Nothing earthly succeeds by ignoring heaven, nothing heavenly by ignoring earth.”—Marcus Aurelius (2002, pp 33).

Perhaps a general stance throughout this article is that since technical communication is a technological practice that embodies business philosophy, theory in technical communication should really involve some philosophical deliberation in addition to methodological research about ICTs. In broader terms, any business philosophy should actually have some philosophy behind it. Management paradigms have barely begun to crack the surface of philosophical values and aesthetics in technological professions like technical communication. Since the first management theories started by Frederick Taylor and Elton Mayo, emerging models of strategic management like those of Peter Drucker highlight “knowledge workers,” who technologically communicate and manage technical information as opposed to controlling economic capital (Drucker, 1986, pp 264). Subsequent models put forth by business intellectuals like Michael Porter implicitly build upon Drucker’s notion of managing technical information by acknowledging the importance of social values, cultural histories, and institutional beliefs communicated among clients and competitors (Porter, 2008, pp 171). However, management theorists in general have yet to draw more extensively on the best of philosophical and aesthetic thought.

Some recent exceptions after Galbraith include Matthew Stewart, who in The Management Myth criticizes the nimety of valueless figures, formulas, and truisms in management textbooks. With philosophical ethos, Stewart advises more engagement with the liberal arts to educate managers past limited ideologies based only on technological training or technique: “Preparing managers to manage, in fact, is not different from preparing people to live in a civilized world. Managers do not need to be trained; they need to be educated” (Stewart, 2009, pp 291). Another exception in the business world includes William Powers, who in his book Hamlet’s BlackBerry takes an approach similar to Stewart’s by drawing on old wisdom to construct “a new digital philosophy” that responsibly balances technology use with human needs (Powers, 2010 pp 4). Taleb is also an exceptional business philosopher who advocates an “empirical skeptic” orientation a la Sir Karl Popper to critically manage uncertain knowledge in technological and statistical work (Taleb, 2010, pp 192). For communicative planning in the technostructure, I argue that pragmatism appropriately contributes to a business philosophy of technical communication, particularly through its aesthetic and moral reconstruction of knowledge with ICTs for adapting to technological interconnectivity.
Appendix 1: the meaning of truth and the truth of meaning in pragmatism

With respect to communication and linguistic meaning in general, Wittgenstein and the pragmatists understood meaning as the practical use of language, and they equated ‘truth’ as a verified consequence from such meaningful use. For Wittgenstein, the meanings of words depend on what he calls “language-games,” in which “speaking of language is part of an activity, or of a life-form” (Wittgenstein, 2001, pp 10, #23). Understanding the meanings of words as practical actions, therefore, is entirely “not a mental process” (52, #154). How a person utters linguistic meaning entails “how these words are used. It would be quite misleading . . . to call the words a ‘description of a mental state’.—One might rather call them a ‘signal’; and we judge whether it was rightly employed by what he goes on to do” (62, #180). Words are more than just thoughts because they entail practical activities with other people in common forms of life. Like Wittgenstein, the American pragmatists saw meaning as practical activity, and so the truth of statements intrinsically links up to their use, or their “cash-value in experiential terms,” as James figuratively puts it (James, 1907, pp 81). “True is the name for whatever idea starts the verification-process,” James says, and “useful is the name for its completed function in experience.” Truth, he concludes, means “nothing but eventual verification” through repeated experience (83). Popularizing the pragmatist method, James basically rearticulated Peirce’s approach to communicating truth and meaning, which was to make ideas clear by considering their “sensible effects” (Peirce, 1997, pp 36). “To attain perfect clearness in our thoughts of an object,” James said, “we need only consider what conceivable effects of a practical kind the object may involve—what sensations we are to expect from it, and what reactions we must prepare” (James, 1907, pp 19). Dewey later would call this method the “denotative” or “empirical” method (Dewey, 1958, pp 6). Parrying both the metaphysical objectivism of modernism and the cultural relativism of postmodernism, James states that truths are not a priori correspondences to metaphysical objects, nor are truths completely relative to socially constructed ideologies: “Truth for us is simply a collective name for verification processes . . . Truth is made” (James, 1907, 89). The pragmatist framework, then, equates meaning with practical use and truth with verification processes related to such use.

Bertrand Russell and other positivists often mischaracterized the pragmatic theory of meaning and truth as a dangerous version of relativism, claiming that just because something meaningful is verified does not necessarily make it true. For example, a thousand years ago many people believed in geocentrism based on the verification processes of their time, but it would clearly not make sense to say at that time the sun rotated around the earth and now the earth rotates around the sun. James and Dewey were simply indicating a non-reductive meaning of truth: truth is accessed through aesthetic, scientific, or philosophical verification processes, but it is never entirely reducible to them. Those verification processes simply give the most reasonable yet always revisable truth assertions that artists, scientists, or philosophers presently can make about reality. Truths are revisable because they are constrained by the cultural and technological affordances in which verification takes place. That is, truth is verified via aesthetic, scientific, or philosophical practices that are contingent on cultural and technological conventions—not to mention cognitive limitations of our species’ evolutionary psychology. So
while truth may not strictly correspond to metaphysically certain objects, it is useful for
methodological or commonsensical purposes. As Cornel West summarizes,

truth [in pragmatism] is not reducible to warranted assertibility, yet to analyze the
meaning and nature of truth in terms of correspondences with Reality or coherence
with other sentences actually entails falling back on warranted assertibility in practice.
To hold onto such analyses of truth soothes the agonized consciences of realists and
idealists . . . In short, there is no significant difference between the nature of truth and
the test of truth, but the two are never identical (West, 1989, pp 100).

While pragmatism does not entail absolute objectivism or absolute relativism, it is pluralistic
and partly relativistic. To illustrate with the recent pragmatist-inspired epistemology of Hilary
Putnam, we can acknowledge “conceptual pluralism” (cognitively different descriptions of
phenomena that use diverging but compatible linguistic content) and “conceptual relativity”
(cognitively equivalent descriptions of phenomena that use corresponding but incompatible
linguistic content) without resorting to complete relativism (Putnam, 2004, pp 33-51). As I
understand it, conceptual pluralism means describing the same thing in different but
compatible ways—a chair is both a bundle of atoms and a piece of furniture; conceptual
relativity means describing the same thing in different and incompatible ways—the English
word ‘mind’ or ‘soul’ versus the German word ‘Geist’ or ‘espirit.’ For Putnam, absolute
objectivism and absolute relativism both fall away to what he calls “pragmatic pluralism,” which
is using a plurality of convention-based discourses or “language games” to describe and verify
the truth of a situation (21-22). Such discourses are, Dewey would say, instrumental to
practices. That is, discourses and knowledge in general are cognitive instruments or tools for
getting practical things done in the world. This instrumental view of knowledge does not mean
that any or every idea is equally valid. As both Wittgenstein and Dewey often phrased it, ideas
either make “sense” when applied to situations or they do not (Wittgenstein, 2001, pp 107,
#422) (Dewey, 1958, pp 261). (See Figure 3 for the pragmatic definitions of these words.)

Figure 3: The pragmatic definitions of some epistemological terms.

**Meaning** = Use

**Truth** = Verification

**Understanding** = Verified use (applying the truth of meaning)

**Making sense** = Accurate use (properly understanding the meaning of a situation)

**Discourses/knowledge/ideas** = Cognitive instruments for practical action
Appendix 2: pragmatism’s contribution to the philosophy of technology

Rhetorical and cultural theorists have rarely recognized pragmatism’s contribution to the philosophy of technology. Ironically, for instance, critical theorists such as Horkheimer and the Frankfurt School often mischaracterized Dewey’s ‘instrumentalist’ epistemology as a kind of ethic of expediency a la Just/Hitler. This mischaracterization, however, is philosophically impossible, since Deweyan pragmatism entirely undermines epistemological objectivity. Moreover, it is factually wrong because Horkheimer and other critical theorists misread Dewey’s conception of technology. As Larry Hickman points out in John Dewey’s Pragmatic Technology, “death camps were not for Dewey an example of technology in his reconstructed sense.” Instead, Hickman explains, they were “the worst example of the straight-line instrumentalists’s adherence to fixed ends, a program that was in that particular case rendered even more disastrous because intransigent ends were coupled with reliance on slovenly technical means, and therefore neither goals nor means had been checked” (Hickman, 1990, pp 201). In fact, Hickman continues, Dewey strongly rejected this “straight-line instrumentalism, or the view that neutral tools are brought to bear on ends that are valued for reasons external to the situations within which those tools have been developed.” Straight-line instrumentalism correlates to the ethic of expediency. Dewey replaced this ethic with a more organic view of humans and technology for the reason that “human beings are organisms within nature and that their tool use is one of the developmental edges of natural activity. Tools and artifacts are no more neutral than are plants, nonhuman animals, or human beings themselves: they are interactive within situations that teem with values” (202). Since Dewey clearly disdained metaphysical distinctions like those between fact and value or means and ends, Hickman concludes:

Responsible technology involves for Dewey the choice, the implementation, and the testing of goals that arise from those situations . . . Values arise out of inquiry, and once they are refined by inquiry they are brought back to the situation from which they originated in order to ascertain whether they are appropriate. Tools that are utilized in choosing, implementing, and testing enter into the articulation of those ends, or things to be done, modifying those ends as the need arises. Evolving ends demand the modification of existing tools. Responsible technology thus remains flexible because it must accommodate changing situations. In addition to being resilient, responsible technology is redundant: it does not allow undue risks, and it backs itself up, both in terms of parallel development and in terms of the establishment of plateaus as possible fallback positions. Responsible technology is not so much radical as regenerative . . . where technology fails to be responsible, it is not because technology as method has failed, but because inquiry and testing have been misdirected, subsumed to nontechnological ends, or aborted. Ends have been dissociated from means (202).

Hickman confirms that Dewey rejected the ethic of expediency and similar attitudes like excessive efficiency or straight-line instrumentalism. Furthermore, Dewey’s critique of straight-line instrumentalism is relevant to technology studies because it links pragmatists with other technology theorists such as Winner. As Hickman illustrates, both Dewey and Winner were keen not to draw the fallacies of separating means from ends and facts from values, including
technological means and facts from social ends and values. An influential presumption in the conventional view of technology, Hickman observes,

is what Winner calls the ‘straight-line’ notion of tool use. This is the ‘straight-line’ instrumentalism that Dewey’s critics almost universally accused him of, but he himself criticized it as inadequate for successful inquiry. It is the view that perceived problems come more or less furnished with ready-made desiderata that function as inflexible ends. The resolution of the original difficulty is, then, only a matter of choosing the appropriate instruments, putting them to use, and judging the success of the entire operation in terms of the degree to which there have been a satisfactory arrival at the ends originally projected. Implicit in this traditional view is the contention that valuation comes from outside experimental technology, that goals are formulated by nontechnological means (148-149).

Dewey’s pragmatic version of instrumentalism is quite the opposite of straight-line instrumentalism. His pragmatic instrumentalism makes technologies aesthetically holistic by linking facts to values and means to ends, and it takes for granted humans’ connection to nature as living organisms as well as their connection to each other as social beings. These natural and social connections create an aesthetic background or matrix of potential values and meanings, and this background is always the context in which technological activity takes place. In Art As Experience, Dewey refers to this background as the “qualitative background” of possibilities where particular “qualities” of things or objects can be discerned—by “qualities” Dewey means aspects of things or objects that are perceived by giving them certain value to sense their relevant meanings. Dewey quotes Tennyson to illustrate the almost mystical feeling associated with the aesthetic experience of a qualitative background:

“Experience is an arch wherethro’
Gleams that untravell’d world, whose margin fades
Forever and forever when I move” (Dewey, 1934, pp 201).
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