

LEAN & AGILE PUBLIC-SECTOR GOVERNMENT ACQUISITIONS: 21 PRINCIPLES OF COLLABORATIVE CONTRACTS & RELATIONSHIPS

As the 21st century inexorably marches forward into its post-industrial state, knowledge-intensive industries are becoming the dominant jobs, trades, and professions. Societies, nations, and industries have passed through several major phases or transformations throughout history (e.g., hunting and gathering, agriculture, mining and extraction, manufacturing, services, information, etc.). In his 1959 textbook, *"The Landmarks of Tomorrow,"* The Austrian-born Peter Drucker, one of the most infamous Western management consultants of all time, said *"The most valuable organizational assets of a 21st-century institution, whether business or non-business, will be its knowledge workers and their productivity."* Columbia University-educated and Harvard professor, Daniel Bell, went on to popularize the theory of 21st-century knowledge workers in his 1974 work *"The Coming of Post-Industrial Society,"* in which he predicted the most important workers would become professional and technical workers. However, who and what exactly are these so-called 21st-century knowledge workers and what makes them so special or unique?

Although, there is no exact definition, taxonomy, or classification of 21st-century knowledge workers, there are some basic, well-accepted archetypes. These include executives and directors; lawyers, physicians, and accountants; business professionals such as economic, finance, investment, real estate, banking, marketing, sales, and creative consultants; and, of course, technical specialists such as scientists, engineers, technologists, and mathematicians. Last, but not least, these also include computer scientists, programmers, software developers, information technology or information systems engineers, network engineers, data center designers and operators, systems administrators, and help-desk personnel. A broader definition of a knowledge worker includes any employee of a modern, contemporary organization, such as hospitality, store or sales clerk, call center, healthcare, technical or sales support, equipment installation, construction, home improvement specialist, and maintenance personnel. Basically, workers that provide direct services to customers, clients, and end-users, and have a direct pulse on the market.

Okay, now that we have an inkling of who and what knowledge workers are, exactly, what makes them so special? Management consultants from the late 20th and early 21st centuries often used the phrase, *"Under highly uncertain and dynamic market conditions, this new product or service development paradigm is necessary"* (e.g., lean and agile thinking, etc.). However, what exactly does this phrase mean? This phrase is often associated with the Energy Crisis or Oil Shock of the 1970s, when the Organization of Arab Petroleum Exporting Countries (OAPEC), regulated fuel prices leading to fuel shortages and high-energy prices in direct response to Middle Eastern military instability. Up until the 1970s, U.S. manufacturers dominated or monopolized many manufacturing industries, often holding 80% to 90% of global markets. Following the OPEC embargo, U.S. market holdings sharply plunged from 1970 to 1990, decimating market holdings to 10 or 20% and forcing 50% to 70% of U.S. manufacturers out of the marketplace altogether, either directly, through mergers and acquisitions, or through sale to foreign banks.

So, now we have a clearer picture that we need to think-out-of-the-box when market conditions are unstable, businesses are in a state of crisis, and the status quo is no longer acceptable. However, this doesn't really answer the question of how this relates to knowledge workers? Well, another closely-interrelated phenomenon is *"decision-making under risk and uncertainty?"* But, what does this mean? It means exactly that (e.g., how does an organization operate and succeed when it simply doesn't have all of the information it needs to make a sound business decision or investment)! For example, when financial investors don't exactly know which stock or portfolio of stocks to purchase (are there equations, algorithms, criteria, or processes that can help them). Another example is an energy company exploring new oil fields (how does one predict where to drill and how many resources to apply).

Probably, a much better example is a high-technology company determining which new products and services to research, explore, or invest in further development (e.g., how does one determine which market breakthroughs are worthy of resources).

Now we're getting warmer, but we're not exactly there. Michael Polanyi coined the term *"Tacit Knowledge"* in his 1958 textbook, *"Personal Knowledge."* What exactly did he mean by this term? What Polanyi meant was that some human knowledge existed as written, codified, and highly-visible, *"Explicit Knowledge"* (e.g., Einstein's Theory of Relativity). Polanyi also observed that much of human knowledge exists as mental, intangible, and invisible, *"Tacit Knowledge"* (e.g., thoughts)! In other words, the more creative an endeavor, field, or profession, the more it exists as *"Tacit vs. Explicit Knowledge!"* Another way of saying this, is that Tacit Knowledge also means uncertainty, unpredictability, risk, and failure. Ever heard the phrase, *"People are unpredictable!"* Humans are not machines and rarely exhibit static, repeatable, or predictable behavior. Hunting, farming, mining, and manufacturing are skills with little ambiguity, are well-documented, and can be taught and repeated with little difficulty. However, the highly-creative work of artists, musicians, scientists, technologists, engineers, and mathematicians (e.g., knowledge workers) is unpredictable.

However, it was the founding fathers of software engineering that hit-the-nail-on-the-head and uncovered the true nature of the uncertainty among 21st-century knowledge workers. Gerald Weinberg published his seminal masterpiece entitled, *"Psychology of Computer Programming"* (1971), which explored the unique link between software development behaviors and project outcomes. Frederick Brooks likened software developers to dinosaurs inexorably trapped in tarpits (1970s) and called software *"pure psychological thought stuff"* (1980s). Canadian Computer Scientist, David Lorge Parnas, complained of the impossibility of large-scale software-intensive systems such as the *"Strategic Defense Initiative (SDI)"* or *"Star Wars"* in the 1980s (due to the statistical impossibility of testing complex, open vs. closed-loop, non-finite, non-discrete systems of systems with infinite states). However, no one listened to these prophets and continued outsourcing software contracts with increasing fervor and intensity leading to textbooks methodically chronicling major contract failures, such as Leonard Lee's, *"The Day the Phones Stopped!"* (1991).

It was as though we knew the answer to the uniqueness of 21st-century knowledge workers all of the time, but simply refused to acknowledge it, or were simply cognitively-blind to the answer all along. Like 19th-century Civil War era battlefield surgeons, we were knee deep in the blood of the fallen soldiers but did not understand how the loss of blood contributed to their deaths (and how simple bandages, field dressings, tourniquets, and blood transfusions could've save their lives). Again, it was like the voice of early management scientist Mary Parker Follet (1868-1933) was calling out to us, when she formed her theory of *"Power With vs.*

Power Over,” with respect to listening to factory workers instead of lording it over them (in a time when women were not able to attend male colleges, nor be hired as management consultants in male factories). As software measurement theory stabilized in the 1990s, Capers Jones noted the relationship between software complexity and software failures. Even the Standish Group illustrated year after year that system complexity undermines project management performance, predictability, and success.

In the 1960s, Neuroscientist, Paul MacLean, devised the theory of “*The Triune Brain,*” which is composed of three major logical groupings (e.g., reptilian, mammalian, and human). The lowest-level reptilian, primitive, or base brain, consisting of the basal ganglia—brainstem and cerebellum, regulates and controls respiration, heart rate, temperature, hormone, hunger, thirst, reproductive-drive, fight-or-flight, and other autonomic responses and instincts. The middle-level mammalian or emotional brain, consisting of the limbic system—hypothalamus, amygdala, and hippocampus, regulates and controls fear, anger, sadness, joy, love, disgust, surprise, friendship, and trust. The highest-level human or cognitive brain, consisting of the neocortex—temporal, parietal, occipital, and frontal lobe, regulates and controls language, intelligence, abstract thought, imagination, consciousness, perception, and problem solving. Today innovation researchers now assert that 70% to 90% of new product and service requirements exist as hidden, inexpressible customer and market needs buried deep in the first-two levels of the brain.

Management consultant, Simon Sinek, modeled “*The Golden Circle,*” from his 2009 bestseller, “*First, Start with Why,*” after MacLean’s Triune Brain, consisting of Why—Basal Ganglia, How—Limbic System, and What—Neocortex. Sinek says to appeal to the Basal Ganglia by answering, “*Why are you doing it?*” Then appeal to the Limbic System by answering, “*How are you doing it?*” Finally, appeal to the Neocortex by answering, “*What are you doing?*” Implicit in MacLean’s Triune Brain and Sinek’s Golden Circle, is the notion that all market, consumer, human, and end-user desires begin in the Basal Ganglia and Limbic System where only Tacit Knowledge exists. That is, customer requirements do not begin in the Neocortex, where Explicit (Written or Spoken) Knowledge exists. This has profound implications for how new product and service designers communicate with their buyers, customers, and end-users. Journalist Malcolm Gladwell came to the same conclusion in his 2005 bestseller, “*Blink,*” asserting the majority of people’s decisions originate instinctually in real-time from the Basal Ganglia and Limbic Systems (not the Neocortex).

This explains why Far Eastern nations such as Japan, which largely rely upon body language communication, devised complex lean and agile thinking (flexible manufacturing) systems such as the Toyota Production System (TPS), based solely upon visual cues (Kanbans or signboards). In fact, Japanese automakers imported millions of foreign laborers into Japan with little more than an elementary school education to produce high-quality cars at rock-bottom prices, which did not even speak Japanese. In other words, they are able to coordinate the production of 10 million automobiles each year with a combined workforce of 5 million people largely of foreign origin. Japan uses a very simple sense and response system to tease out market requirements, knowing customers “*will know what they want when they see it.*” They simply produce a variety of low-cost market probes, prototypes, and experimental models, release these to domestic, advanced, and expert users, systematically identify the models and features they like, and then down-select, mass-produce, and mass-market only the strongest, most reliable, and highest-quality designs.

So, how do we translate lean and agile thinking into information technology-intensive products and services? Aren’t Japanese automobiles Explicit Knowledge with little uncertainty, which could be produced using traditional, linear, document, process, and stage-gate-driven waterfall lifecycles? That may be true, but Japan wouldn’t be able to exploit low-cost foreign labor that doesn’t speak their language and simple, instinctual, and paleolithic visual Kanban systems calibrated for Japan’s body language-intensive culture, which are not heavily laden with Explicit “*Written*” Knowledge. Furthermore, Japan is a remote island nation with few natural resources that could not cost-effectively tolerate 70% to 90% waste and work-in-process (WIP) associated with 20th-century Western manufacturing systems. Most importantly, Japan could not rapidly adjust its production levels to wild swings in global demand with lead and cycle times measured in years and decades. Hold on, aren’t knowledge-intensive products and services like software pure psychological thought stuff, which cannot be measured, weighed, seen, or felt like Japanese cars?

Yes, I guess that’s exactly the point, 21st-century knowledge-intensive products and services like software are the apex, epitome, embodiment, and purest form of Tacit Knowledge (pure psychological thought stuff emanating from the old brain). There’s no sense in codifying specific product and service requirements in contracts. It’s also senseless to specify predictive systems like linear project management and information systems lifecycles in contracts (i.e., scope statements, work breakdown structures, schedules, use of EVM, etc.). You’re also wasting your time if you specify processes, requirements, architectures, designs, code size, and test plans in advance. You simply can’t predict the unpredictable, which explains the horrific failure rates of information systems projects. So, what can we do? Well, since we can’t escape 10,000 years of using contracts to govern buyer-supplier relationships, why don’t we specify the required behaviors of collaborative relationships necessary to tease out Tacit Knowledge. In other words, focus on the behaviors necessary to tease out Tacit requirements like Gerald Weinberg suggested in 1971!

- **PRIORITIES.** *Agree to a small set of high-priority tasks or deliverables.* A major principle of collaborative contracts is to minimize the amount of work-in-process (WIP), waste, bottlenecks, and queue size. This helps reduce lead and cycle times, increase throughput, optimize (capacity) utilization, and overall efficiency and effectiveness. Other major effects or outcomes include sustainable pace, team morale, team happiness, and overall job satisfaction. Optimal pace or utilization allows the team to self-organize, be creative and explore, identify and develop a high-quality solution, achieve self-mastery and self-actualize, feel empowered, and realize the power of employee-ownership. The overall outcome of these effects is that they’ll take the time to listen to and measure the voice of the customer, market, and end-users, and, of course, deliver a deeply satisfying, delightful, and thoughtful product or service and overall end-to-end user experience. (*Conversely, traditional thinkers gather thousands of customer requirements, jam them into schedules and backlogs, over-allocate resources out of selfish-greed to squeeze blood out of turnips, freeze queues and elongate lead and cycle times, frustrate and dissatisfy themselves and customers, burnout employees and cause high-attrition rates, and blame everyone else for their own inadequacies, inexperience with lean and agile thinking, or disbelief in the strategic value of lean and agile operational paradigms.*)

- **ROADMAP. Agree to a general timeline, roadmap, or sequence of activities.** Another major principle of collaborative contracts is to develop a lightweight, short-term timeline or sequence of activities, deliverables, or events. Once again, this helps reduce lead and cycle times, increase throughput, optimize utilization, and overall efficiency and effectiveness. Other major effects include allowing time for emergence of new ideas, adjusting throughput for individual schedules and life events, and, of course, adaptation to new customer requirements, market needs, and priorities. A lightweight, yet somewhat salient (firm but flexible) roadmap, timeline, or schedule of events provides an overall framework, structure, and environment where value adding work can be accomplished, a highly-visible information radiator, Kanban board, or set of commitments, and, of course, an environment of trust, confidence, and (internal and external) satisfaction. *(Conversely, traditional thinkers use 19th-century push principles to predict customer needs for decades, develop detailed work breakdown structures, Gantt charts and schedules, decompose these into granular tasks, and then use these outdated Tayloristic ideas to measure cost and schedule performance in seconds, to satisfy themselves that every minute of the day is accounted for, money is not being wasted, and unseen customers will be satisfied with expensive products and services they do not need.)*
- **FLEXIBILITY. Agree to allow flexibility and latitude in decisions and activities.** A key principle of collaborative contracts is to build-in room to think, brainstorm, adjust priorities, and be creative. This includes activities, deliverables, technologies, solutions, architectures, designs, dependencies, and life events. This helps employees feel deeply empowered, satisfied, involved, and happy, strive to develop high-quality solutions, and provides an environment for success. Customer or market needs often emerge on an hourly, daily, and weekly basis, cannot be predicted in advance, and opportunities for creativity, learning, and gathering innovations, technologies, and solutions often happen spontaneously. The outcome of built-in flexibility, capacity, buffers, margins, and moderate operational pace allows customers to get what they need, businesses to realize operational efficiency, and employees to feel satisfied with the organizational pace. *(Conversely, traditional thinkers use contracts, schedules, and rigid rules to squeeze out and prevent flexibility, remove variability, and attempt to account for every hour, minute, and second, out of some insane belief that humans are automatons or machines, must be treated like slaves or obedient animals and children, treat employees like 18th-century house servants, and even try to yield more business value out of employees by over-allocation and shaming them into delivering more than what was agreed.)*
- **MINIMAL. Agree to produce narrowly-scoped minimum viable products (MVPs).** A key principle of collaborative contracts is to plan a series of narrowly-scoped MVPs, Epics, Features, or Microservices. MVPs should be created by one person working alone in a very short period of time. It's best to use pair programming principles when it comes to fulfilling customer requirements with salient business value (as larger teams can kill an initiative quickly). It's surprising how much value two people collaborating can solve a large market problem with immense business value. This helps public sector agencies, corporations, and projects get salient work done with great value quickly. Business needs must be intentionally scoped to be done by one or two people in a hurry, while building in excess capacity. Less is more, and immense business value can be achieved by small teams fast. *(Conversely, traditional thinkers plan for large, over-scoped, and labor-intensive activities for individuals or teams to be done quickly at the expense of burning them out, causing high attrition rates. People are interchangeable cogs in the wheel and are just contract slaves that must be used up or burned up to get the most business value out of them. Traditional thinkers not only plan for over-scoped deliverables, but many overlapping, gold-plated requirements, with little excess capacity. It's an instinctual, self-defeating cannibalistic traditional thinking style.)*
- **COOPERATE. Agree to cooperate, collaborate, and perform joint problem solving.** A critical element of collaborative contracts is to plan for a high-degree of cooperation between buyers and suppliers, customers and providers, and end-users and developers. Projects, activities, and deliverables must be jointly executed, even if one party serves as a coordinator or constant voice of the customer throughout the project. A small number of activities and deliverables must be planned, so as not to overwhelm the buyers with too much tedious detail. Appoint someone to be part of the team for performing and activity or constructing a deliverable from start to finish. The goal of customer involvement is to facilitate, guide, be a second set of eyes, coordinate dependencies, and remove any roadblocks or obstacles to success, so that the supplier can proceed at constant velocity. *(Conversely, traditional thinkers perform a variety of degenerative behaviors like specify too many over-scoped requirements, specify an over-scoped solution with too much uncertainty, resort to traditional paradigms to capture this complexity in-vain, micromanage every second of every day, ignore any oversight at all, and simply denigrate the suppliers or developers for their own lack of management competency. Lack of cooperation by traditional thinkers in-lieu of a master-slave paradigm is the surest way to quick failure—Absolute power corrupts absolutely.)*
- **COMMUNICATE. Agree to frequent informal communications to clarify all activities.** An essential element of collaborative contracting is to practice frequent, informal communications between buyers and suppliers, as well as communications within buyers and suppliers. Teams must use as much face-to-face, verbal, audible, and in-person interaction as possible when solving problems. Oftentimes, the solution is to collocate, use personal high-context visual, audible, and graphical communications, and get together in huddle rooms, collaboration rooms, or at one another's desk, etc. Teams may use teleconferencing websites for synchronous communication, asynchronous meeting rooms like Slack, or even texting or emailing. However, the key is to keep the communications constantly flowing over short periods of time, keep communications cooperative, congenial, and collegial, keep them close together, and don't stop until the task is done. *(Conversely, traditional thinkers prefer to communicate in periodic governance meetings, use documentation and legal contract instruments, give orders or submit change requests, or simply use one-way communications to tell people what to do, chastise suppliers, and exercise authority. Traditional one-way authoritarian communication vehicles and styles seem simple on the surface, encourage narcissistic selfish motivations, and seem logical, but they undermine relationships and project success.)*

- **DEMONSTRATE. Agree to regularly demonstrate progress of tasks and deliverables.** A key element of collaborative contracting is to establish periodic milestones to demonstrate key deliverables, accomplishments, and commitments. This gives both parties a sense of visibility, pride, and satisfaction that business value is achieved. Space events at regular intervals, probably no closer than about a month or slightly longer for larger deliverables. Don't overcommit to many deliverables spaced together and certainly not many overlapping deliverables. The secret sauce is one-piece workflow, building in excess capacity, creative freedom, and enabling capacity for dynamic, emerging needs. Don't over-allocate people to multiple simultaneous projects or over-matrixing, which leads to deadlocked queues, bottlenecks, over-utilization, burnout, poor quality, long lead and cycle times, dissatisfaction, and attrition. *(Conversely, traditional thinkers use large big-batch, over-scoped stage-gates, and milestone reviews spaced out over years and decades. This leads to deadlocked queues, bottlenecks, complex schedules, dependency management, poor quality, long lead and cycle times, high costs, and dissatisfaction. The degenerative effects of big batches have been known for decades, which do not serve a dynamic market-driven pull-driven systems like lean thinking. 20th-century linear, waterfall, big-batch paradigms sound good on paper, but are simply bad management.)*
- **EQUAL. Agree to equal buyer-supplier decision-making rights, authority, and direction.** A key feature of collaborative contracting is the practice of egalitarian, flat, networked, empowered, consensus-driven, and bottoms up decision-making. That is, the practice of pushing down, empowering, and delegating decision-making authority and responsibility to the lowest-level possible. Front-line workers are closest to customers and have the most valuable business intelligence, insight, and pulse on current dynamic market conditions. This is especially true in knowledge-intensive industries such as information systems, where intangible tacit-knowledge, intellectual capital, software, and customer relationships are traded in the marketplace. The key is to flatten the organization, distribute decision making authority to the lowest level, and pull-up business intelligence from the front-line into more dynamic and responsive organizational strategy, vision, goals, and objectives. *(Conversely, traditional thinkers give absolute power and authority to overpriced executives who make expensive irrelevant decisions for everyone, treat people like slaves, and form committees of middle-managers to promulgate bad decisions. They disempower 21st-century knowledge works and treat them like common janitors. This outdated bureaucratic, command and control authoritarian style leads to unresponsive suppliers, dissatisfied buyers, and the inability to keep up with technological change.)*
- **TEAMS. Agree to keep team size as small as possible, preferably in self-selected pairs.** A critical aspect of collaborative contracting is extremely small team size. Miller's limit (1956) was the rule of thumb (seven plus or minus two), and hundreds of people are now suggested. Pair programming was popular in the 2000s, which was soon forgotten. We've rediscovered that the optimal team size for working on an Epic-MVP, Feature, User Story, Task, activity, or other key deliverable is about one or two people. It's okay for one person to work alone with some collaboration. The danger of one person is that it's too easy to assign them an over-scoped MVP, and they'll veer off the beaten path. The optimal size is two people for satisfying an objective with global business value. Teams must self-select the tasks, which elevates intrinsic motivation and business value. *(Conversely, traditional thinkers prefer large portfolios, programs, projects, and teams. Bigger is better, because of over-scoped planning and requirements-driven linear waterfall projects to crash deadlocked queues, bottlenecks, and long lead and cycle times with over-capacity. Public sector reward systems are based on managing large-budgets, so over-scoped teams are the quickest way to scale the organizational ladder. Society recognizes leaders for managing large budgets, so there is no joy in small, narrowly-scoped MVPs that can be quickly fielded for immense customer, market, or end-user value.)*
- **SIMPLE. Agree to keep plans, processes, tasks, and deliverables as simple as possible.** A critical practice of collaborative contracting is to ensure implementation practices are simple, flexible, open, and emergent as possible. Allow teams the creative freedom and flexibility to choose whatever practices are necessary to execute the activity or construct the deliverable. Minimal governance is acceptable such as basic formats, begin and end times, and overall dimensions. However, the process and product requirements should not be overly-specific, detailed, inflexible, or elaborative. That is, allow open-slate practices or state the minimum acceptance criteria in advance, but do not levy additional criteria throughout the period of performance, or a checklist of detailed criteria at the very end and extend the lead or cycle times beyond what was initially agreed. *(Conversely, traditional thinkers wish to apply 20th-century domestic, international, or regulatory standards requiring mastery of multiple, thousand-page volumes, requiring expensive and exclusive certifications to legally or contractually apply. Furthermore, these compliance-oriented standards tend to have thousands of non-specific requirements, with numerous overburdening interpretations, making them impossible to satisfy for all but a few automatons, robots, or androids. Worse yet, teams are often left to their own devices only to have these standards levied after the fact when resources are gone.)*
- **RETROSPECT. Agree to frequently evaluate current activities, direction, and deliverables.** Another important practice of collaborative contracting is to frequently retrospect immediately after the completion of activity or deliverable. The team, especially the recipients of the new product or service should answer three basic questions (what worked, didn't work, and what should be done better). The retrospective should focus on the positive aspects of what was done, the process itself instead of the people, and the quality of the work product. There should be a ratio of at least 5 or 10 to 1 positive to negative statements. High, value-adding improvements should be selected vs. everything identified. Remember to keep the retrospective as simple and painless as possible, keep the atmosphere positive and collegial, and focus only on the absolute highest-value adding feedback. *(Conversely, traditional thinkers apply large-batch-oriented linear waterfall lifecycles, take years and decades to complete projects, and seldomly perform retrospectives. Teams are so exhausted with these death marches that no one cites any appreciable improvements. Multiple technological revolutions occur over these long lead and cycle times, so any improvements to the outdated and obsolete processes and technologies are overtaken by events. In the worst case, hundreds of improvements are identified early and often and fed back into backlogs to be tracked as new requirements.)*

- **IMPROVE. Agree to make frequent contract course corrections to improve its performance.** An often-forgotten aspect of collaborative contracting is the necessity to routinely make improvements to governance, processes, deliverables, technology, and infrastructure as often as possible. Continuous improvement or constant change is at the heart of lean and agile thinking, which is a contract in of itself to get better, simpler, faster, more satisfying, easier, delightful, enjoyable, fun, productive, and useful. Agile teams should retrospect and improve at delivery, demonstration, or major reporting events that involve buyers and suppliers. Suppliers should ask their buyers (customer), “How did I do? How can I make this better? What do you really need?” Likewise, since collaborative contracting is a partnership, buyers should also ask suppliers the same set of questions, so they will be more receptive to the equal nature of the buyer-supplier relationship. *(Conversely, traditional thinkers, when they finally agree to use any process at all, which most of them don’t, assume that traditional and lean-agile thinking is static, rigid, and unchanging process that must be taught, documented, and followed without fail. They often promulgate painful, administrative, routine, and ineffective processes with regular, cyclical, and unyielding ceremonies, systems, technologies, and deliverables just for the sake of following a process and refuse to simplify things.)*
- **VISUAL. Agree to use visualizations, images, pictures, and diagrams as much as possible.** A simple, but powerful technique of collaborative contracting is to use simple visualizations, information radiators, images, and descriptions to capture and outline timelines, activities, or deliverables. This can be a flipchart, whiteboard, wiki page, or other visually intensive collaborative workspace. Simple, ordered, prioritized, bulletized, or numerical enumerations of activities, deliverables, or tasks will suffice. Simply check them off when they are done. The key is to collaboratively brainstorm these activities together, keep it simple, and make it self-evident. Yes, human language is a natural language with a lot of ambiguity, so people may have to revisit these enumerated lists for clarification, discussion, disambiguation, and agreement when checklist items are complete. *(Conversely, traditional thinkers, if they document their activities at all, which many of them don’t, create complex project schedules, work breakdown structures, project networks, and spider-web like inter-dependencies. Or they create voluminous project charters, scope statements, project plans, requirements specifications, enterprise architectures, security control audits, etc. Worse yet, they embed mind-numbing detail in complex automated tools with cavernous links, hierarchies, and internetworked pages that only a physicist can decipher, and punish people for missing something.)*
- **EMERGENCE. Agree to allow for spontaneous emergence of creative new ideas and solutions.** A central element of collaborative contracting is to plan for, expect, and build-in capacity for creativity, discovery, and emergence of new ideas. 21st-century knowledge work involves high uncertainty, risk, and failure, because it’s difficult to put a boundary around ideas, emotions, feelings, tacit knowledge, intellectual assets, and dynamically shifting market needs. The entire basis of collaborative contracts is to plan for emergence, creativity, uncertainty, convergence, discovery, and surprise. Collaborative contracts must begin with an initial list of prioritized requirements, activities, or deliverables. However, the key is to build-in excess capacity, keep things simple, and keep WIP as low as possible, in order to leave room for unexpected surprises, creativity, convergence, and innovation. *(Conversely, traditional thinkers believe all work is routine, administrative, low-risk operations that can be predicted in-advance, planned out over months and years in meticulous detail, and converted into project plans, schedules, requirements, and other deliverables. Worse yet, they plan so many intricate activities without a pulse on the market place, that they leave no room for emergence, dynamic tasking, real-world emergencies, or other opportunities for innovation, creativity, or realizing global business value by responding to spur-of-the-moment customer or market needs.)*
- **DYNAMISM. Agree to allow time, capacity, and resources for dynamic tasking and deliverables.** A closely inter-related principle of collaborative contracting is to plan enough bandwidth and capacity for dynamic tasking. There should be multiple tiers or classes of service, including emergency, short, medium, long, and extremely long-term tasks. Customer and market needs often emerge suddenly, and new requirements must be logged, assigned, and executed as appropriate. Not all new work should be taken on, but if it is directly relevant to what you are doing, then the work must be done. It’s also important to maintain a sense of order and not ignore short, medium, and long-term tasks that should be done. *(Conversely, traditional thinkers can’t adapt to spontaneous requirements, they’re locked into long-term plans with detailed derived requirements that have no bearing on valid customer or market needs, and they have no idea that a real-time request from a high-paying customer carries more weight than requirement derived by low-level planners, months in advance. It doesn’t take long for the project plan to become irrelevant in a matter of only a few hours or days. The answer is to strike a balance of short, medium, and long-term tasking, without losing sight of dynamic and static priorities with proper capacity planning, customer intake, and patience with a few high-priority needs vs. volumes of mundane detail—less is more.)*
- **LISTEN. Agree to listen, observe, gather information, reserve judgment, and continuously learn.** An essential element of collaborative contracting is to listen to the voice of the customer, market, and key stakeholders early and often. Customers won’t know what they want until they see it, and real customer and market needs exist as hidden, inexpressible tacit knowledge. Therefore, it’s essential not to get locked into written contract instruments, plans, and other technical and administrative documentation. Real customer requirements will emerge as subtle queues, expressions, whispers, and other barely detectable utterances. Don’t rush to document yesterday’s needs in detailed plans and then start ignoring true customer and market needs as they occur. *(Conversely, traditional thinkers believe that all project requirements can be predicted years in advance of ever meeting your customers for the first time in the form of acquisition and contract instruments, statements of work, project charters and scope statements, requirements specifications, architecture and design documentation, test plans, and user manuals. They believe they can simply parse the nouns and the verbs from outdated documentation representing yesterday’s needs and turn these into work breakdown structures, Gantt charts, project schedules, roadmaps, timelines, and product backlogs. Genuine customer needs rarely exist as outdated documents and oftentimes evolve day-to-day.)*

- **PACE. Agree to follow a lightly-regulated, but not too overwhelming or overly aggressive timeline.** An important element of collaborative contracting is to strike a good balance of planned work, while building in enough capacity for creative freedom, enjoyment, listening, rational behavior and management, and simply being calm, cool, and collected. Yes, establish timelines with clear milestones, deliverables, expectations, activities, and other value adding elements. However, it's important not to overwhelm buyer or supplier teams, over-allocate resources with project or organizational activities, or try to squeeze blood out a turnip and account for every minute of every waking day. Over-utilization of human resources actually slows the throughput, lead and cycle times, and creates bottlenecks, delays, burnout, poor quality, and dissatisfied buyers and suppliers. *(Conversely, traditional thinkers believe the key to profitability is full utilization of buyer and supplier personnel, not only eight hours a day, but seven days a week, 24 hours a day. This is a throwback to the 17th-century slave era, which itself became child labor in poorly lit factories with toxic chemicals, which is still a key practice in developing nations. They simply do not understand the mathematics of lean thinking, supply chain science, or queuing theory, which illustrate full-utilization slows productivity, throughput, lead and cycle times, and undermines quality and customer satisfaction.)*
- **POSITIVE. Agree to frequently use expressions of encouragement, appreciation, praise, and hope.** The secret sauce of collaborative contracting is to use positive, optimistic, hopeful, cheerful, and joyful words. That is, buyer and supplier leadership, in particular, should be generous with praise, encouragement, and other words of affirmation, when it comes to the performance of buyer and supplier teams. Criticism should be kept a minimum, never used, or rephrased in a way that it points to a higher-state of consciousness, performance, and self-esteem for the buyer and supplier teams. The same goes for middle managers, task leads, and front-line personnel, who must appreciate the great sacrifices that organization, portfolio, program, and project leaders are making. Team leads should focus on the positive and accentuate people's strengths, no matter how miniscule. *(Conversely, traditional thinkers panic at the first sign of trouble, blame other people when things go wrong, or simply criticize and attack their teammates to make themselves look better and hide their own inadequacies. It's only human nature to be negative, critical, biting, and then whisper behind closed doors, gossiping about everyone on the team when they are frustrated. This is the opposite of moral, upright, and ethical behavior to begin with, and promulgating a backstabbing program and project culture is simply not a viable or acceptable leadership principle in the least.)*
- **FRICITIONLESS. Agree to have few governance boards, stage gates, and decision-making obstacles.** An emerging principle of collaborative contracting is keep governance, policies, processes, guidelines, rules, regulations, ceremonies, and even expectations as simple as possible. That is, allow buyer and supplier teams to use creative freedom when choosing rules and regulations, self-organize and self-govern, and don't overwhelm teams with needless bureaucratic nonsense. Allow buyer and supplier teams the flexibility, capacity, and margin for creative freedom to explore, experiment, and allow innovative solutions to emerge while chipping away at uncertainty. This includes methods, tools, visualizations, forums, and even tools, technologies, and automation. *(Conversely, traditional thinkers establish as many rules and regulations as possible, promulgate manufacturing era principles such as bureaucratic linear, waterfall, stage-gate, process and document-intensive project, systems engineering, and information systems lifecycles, activities, deliverables, and checkpoints in a vain attempt to squeeze out uncertainty. They often believe that the most creative people are organizational executives, customers, or senior project leaders with decades and years of experience, and simply do not trust in the wisdom of crowds, teams, and other technical experts to determine their own daily operating rules, tools, and procedures.)*
- **EMPOWER. Agree to empower front-line workers to make as many decisions and actions as possible.** One of the most important features of collaborative contracting is to empower buyer and supplier teams, especially suppliers, to make as many decisions concerning project, product, and service innovations as possible. That is, leaders, buyers, and other senior decision makers must elicit the overall vision from the front-line workers themselves, who are closest to the market and customers, promulgate this employee-driven vision, get out of the way, and allow people to fulfill it. Simply empower front-line workers to make as many decisions as possible, listen and respond to emerging customer needs, and make as many day-to-day decisions as humanly possible. Trusting people to get the job done is a powerful form of motivation, ownership, and commitment, and failing to do so is disempowering and counterproductive. *(Conversely, traditional thinkers simply do not trust people to make decisions, disempower front-line workers closest to the market and voice of the customer, micromanage people, and shift all decision making to top-level governance boards. They believe the average person is inept and must be carefully micromanaged like a two-year old child, regardless of experience, education, talent, skill, or capabilities. Disempowering people, belittling them, silencing them, ignoring them, or simply devaluing people is the quickest way to kill a project.)*
- **EXPERIMENT. Agree to proactively reduce uncertainties by measuring outcomes of small experiments.** A key and often forgotten principle of collaborative contracting is to proactively reduce uncertainty using hypothesis testing, experiments, prototypes, simulations, and low-cost probes. Knowledge workers are surrounded by uncertainties, risk, and unknowns. This is simply the nature of creative endeavors, therefore the only way to reduce this inherent, implicit, and naturally-occurring uncertainty is to form a hypothesis, develop a low-cost, low-risk experiment or test, deploy it to real customers or end-users, evaluate its effectiveness, and rinse-and-repeat. It's not sufficient to simply react to emerging market or customer needs with adaptable thinking. Instead, uncertainties must be proactively reduced. *(Conversely, traditional thinkers attempt to meet behind closed doors without involving customers or end-users, document as many derived product and service requirements as possible through pure guesswork based on past knowledge, experience, and history, and attempt to predict the future in a vain effort to satisfy market and customer needs. Furthermore, they promulgate this black magic, alchemy, and 20th-century sorcery in the form of linear, stage gate, waterfall lifecycles, spreading this predictive hocus pocus out over years and decades. They even use tools like EVM to track the completion of useless derived requirements.)*

Summary

So, what have we learned from this brief treatise on the principles of collaborative contracts and relationships? We've learned we now live in the 21st-century knowledge era. We've learned that knowledge workers buy, sell, produce, and trade in Tacit Knowledge-intensive products and services. Knowledge assets and capital are pure psychological thought-stuff based on hidden, inexpressible human needs emanating from the non-verbal and non-spoken parts of the old brain (Basal Ganglia and Limbic Systems). Tacit knowledge is difficult to measure using principles of physics and metrics such as size, magnitude, length, height, weight, volume, mass, distance, speed, temperature, lead and cycle time, quality, reliability, availability, usability, maintainability, safety, etc. Tacit Knowledge can be successfully teased out using iterative, experimental, and evolutionary methods stemming from lean and agile thinking. These principles must be based upon collaborative behaviors to establish trust, safety, security, health, friendship, intimacy, family, connection, communication, respect, and physiological needs (e.g., Abraham Maslow).

21 PRINCIPLES OF COLLABORATIVE CONTRACTS & RELATIONSHIPS

- **PRIORITIES.** *Agree to a small set of high-priority tasks or deliverables.*
- **ROADMAP.** *Agree to a general timeline, roadmap, or sequence of activities.*
- **FLEXIBILITY.** *Agree to allow flexibility and latitude in decisions and activities.*
- **MINIMAL.** *Agree to produce narrowly-scoped minimum viable products (MVPs).*
- **COOPERATE.** *Agree to cooperate, collaborate, and perform joint problem solving.*
- **COMMUNICATE.** *Agree to frequent informal communications to clarify all activities.*
- **DEMONSTRATE.** *Agree to regularly demonstrate progress of tasks and deliverables.*
- **EQUAL.** *Agree to equal buyer-supplier decision-making rights, authority, and direction.*
- **TEAMS.** *Agree to keep team size as small as possible, preferably in self-selected pairs.*
- **SIMPLE.** *Agree to keep plans, processes, tasks, and deliverables as simple as possible.*
- **RETROSPECT.** *Agree to frequently evaluate current activities, direction, and deliverables.*
- **IMPROVE.** *Agree to make frequent contract course corrections to improve its performance.*
- **VISUAL.** *Agree to use visualizations, images, pictures, and diagrams as much as possible.*
- **EMERGENCE.** *Agree to allow for spontaneous emergence of creative new ideas and solutions.*
- **DYNAMISM.** *Agree to allow time, capacity, and resources for dynamic tasking and deliverables.*
- **LISTEN.** *Agree to listen, observe, gather information, reserve judgment, and continuously learn.*
- **PACE.** *Agree to follow a lightly-regulated, but not too overwhelming or overly aggressive timeline.*
- **POSITIVE.** *Agree to frequently use expressions of encouragement, appreciation, praise, and hope.*
- **FRICTIONLESS.** *Agree to have few governance boards, stage gates, and decision-making obstacles.*
- **EMPOWER.** *Agree to empower front-line workers to make as many decisions and actions as possible.*
- **EXPERIMENT.** *Agree to proactively reduce uncertainties by measuring outcomes of small experiments.*

We've also learned that it's impossible to use traditional thinking, such top-down 20th-century predictive, linear, waterfall, process, document, and stage gate-driven project management, systems engineering, and information systems life cycles. Most importantly, we've learned that high power-distance buyer-supplier systems, paradigms, cultures, attitudes, acquisition, and contracts are not only ineffective and inappropriate, but counter-productive, wasteful, and elongate lead and cycle times, rather than control, stabilize, or shorten them. Traditional, adversarial, and distrustful buyer-supplier relationships are degenerative, destructive, and self-defeating. For one, buyers are the source of Tacit Knowledge, so failing to collaborate prevents the transfer of critical knowledge assets. Overwhelming suppliers with linear thinking creates inexorable bottlenecks and disempowers them from using rapid-fire, low-cost sense and response, experimentation by tying their hands and shackling them with 18th-century slave era governance structures. This prevents them from teasing out Tacit Knowledge from buyers, customers, and end-users.

So, what's the bottom-line? Enslaving suppliers with governance, processes, plans, requirements specifications, exhaustive data models, architectures, documentation, stage-gates, and adversarial, confrontational, and combative buyer-supplier attitudes, relationships, and cultures is not the solution successful to 21st-century knowledge-intensive work. Instead, the playing field must be leveled, and buyers and suppliers must collaborate, cooperate, and share equally in decision-making outcomes. Furthermore, rigid, predictive, and unyielding governance, process, document, and stage gate-driven lifecycles must be abandoned altogether. Instead, buyers and suppliers should elicit market and customer needs together, jointly-establish a small set of high-priority initiatives, and build-in excess capacity for creativity, exploration, emergence, and dynamic tasking. Buyers and suppliers should legally agree to cooperate, collaborate, and create and maintain relationships conducive to collegial communications, trust, openness, transparency, shared risk and authority, optimism, positivity, continuous improvement, mastery, and joint ownership.

Lean and agile thinking is not just another process paradigm or methodology with rigid rules, ceremonies, and measurements that must be enforced by merciless overlords, such as authoritarian buyers, product owners, coaches, facilitators, or Scrummasters. It is certainly not a method of iterating or sprinting through the work packages of a traditional integrated master schedule (IMS). And, of course, it is not a method of attempting to succeed in vain by enforcing traditional buyer-supplier acquisition contracts for government entities with high power-distance leadership, cultures, and rigid bureaucracies. Instead, lean and agile thinking is a method of softening and flattening rigid hierarchies, sharing power and authority, engaging in equal decision-making rights, and empowering workers to tease out knowledge with light-weight sense and response experiments. WIP must be minimized, excess capacity must be built-in, and work should be agreed upon and openly maintained in simple visualizations and information radiators without having to login into a computer system and navigate through a hierarchy of links in a 20th-century WBS.

Collaborative contracts leverage lean and agile thinking by obeying the WIP-limits (e.g., less is more, slower is faster, smaller is bigger, simpler is more complex, visible is easier, painless is delightful, thoughtful is satisfying, empowering is motivating, and engaging is creative, innovative, and valuable). Lean and agile thinking is a worldview of global, national, and organizational

optimization. It is not just another tool in the closet to be minimized, marginalized, and forgotten, and it is not just another rigid process or hammer to be yielded with merciless impunity. Collaborative contracts are legally-binding terms and conditions to cooperate, communicate, visualize, experiment, adapt, react, simplify, continuously improve, and learn with grace, ease, and moderation. If you're not having fun, you're doing something wrong, which includes everyone, not just executives, directors, project managers, and other extroverts, high-achievers, and those with obsessive-compulsive skills and behaviors. Everyone succeeds with collaborative contracting, not just buyers, and not just the powerful, but everyone from the greatest to the least.

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CASE STUDIES IN COLLABORATIVE CONTRACTING AND RELATIONSHIPS

Let's examine a few real-world case studies of portfolios, programs, and projects, which proactively applied principles of collaborative contracting and relationships. A distinguishing feature of these case studies is that lean and agile thinking was used as a legal foundational set of operating principles from the get-go, and were simply not bootstrapped onto an ad hoc environment, nor used to iterate on the work packages of a traditional integrated master schedule (IMS). This is not to say that senior leadership had the vision to do so from the outset but were open and uncertain enough to listen to their management consultants when establishing an environment for successful lean and agile thinking. Another major element of each of these cases was the age-old adage, "Crisis is a Catalyst for Change"—Senior leaders were faced with a "do or die" situation to "do more with less," in which traditional thinking principles simply betrayed them one too many times.

- **E-Commerce Project.** Let's begin with the case of an e-commerce project. This customer was a firm believer in traditional thinking principles when he received his formal graduate education at a major Midwestern university. In fact, he spent much of his adult life as a management consultant and trainer of such thinking. For the last 10 years, he found himself as the chief acquisition officer of medium-size information systems for small businesses. He decided to put his beliefs into practice by specifying the use of traditional thinking principles in each and every contract and statement of work. He asked for a project plan, requirements specifications, architectures and designs, test plans, configuration management, quality assurance, etc. He was absolutely convinced these linear waterfall practices from the 1960s were the key to information systems success. Over the last 10 years, he attempted to acquire approximately 30 information systems in this fashion. Part of the challenge was for contractors to interview small businesses, gather their needs, and translate these into plans, processes, and documentation. The only problem was that in each and every case, few teams made it past the early documentation phase when all resources were exhausted, small businesses ran out of time and patience, and nothing more was produced than a fine pile of useless documents. However, the senior acquisition executive himself was happy to have a small library of information systems documents he could use as exemplars for the next acquisition, which made him feel deeply satisfied. In other words, he'd fulfilled the promise of traditional thinking, which was optimized to produce documentation, not successfully deliver information systems to customers. This official had heard the rumblings of the lean and agile thinking phenomenon, and like most people of his day, simply considered them a joke. Nearing his retirement, he hired a part-time management consultant to give them a go (i.e., sort of one last hurrah). In the very least, he'd have one more failed acquisition contract and a good set of lean and agile jokes to share with his colleagues over a glass of wine. He asked his consultant to bootstrap lean and agile tools onto his traditional harness, which the consultant refused to do. He assured the executive that each team must use the new principles from concept to grave without relenting. So, the consultant drew up new acquisition instruments specifying three MVPs, a short-list of features, and the use of associated behaviors. The contractor teams struggled a bit for the first month with this new paradigm, but within three iterations completed each of the MVPs for the first time in 30 prior attempts.
- **Financial Program.** Now, let's examine a slightly more complex case study of a national bank. A central IT department for 11 national banks operated and maintained about 12 systems for managing U.S. financial assets. It was a set of aging mainframe systems, relational databases, and COBOL programs. It's IT director was promoted to CIO and convinced the national governance board to modernize the legacy systems. So, he was granted a small budget and a short timeline in which to do so. His only recourse was to apply traditional thinking for this project. His senior staff ran the cost models, predicting it would require 10 to 100 times more resources and time than he had. His new IT director heard lean and agile thinking promised organizations they could do things "better, faster, and cheaper" (e.g., more with less). However, that was quite a story and few people could believe these promises. So, they scoured the Internet and found a consultant specializing in lean and agile economics to develop a business case for this new way of thinking. The consultant was more than happy to oblige and did so without hesitation. However, the architecture and testing teams were still not convinced this simple paradigm could help them reproduce such a complex system on a tight schedule and budget, so the consultant produced a business case for them. Past the first few huddles, the consultant then delivered a lean and agile business case to the entire IT department of several hundred people. Surprised by the consultant's voracity, the CIO rushed him into his office and asked him to convince his staff that lean and agile thinking could solve their dilemma in only 10 minutes, which he did. Still not convinced the CIO then asked the consultant for a detailed budget, which he also provided. The CIO, starting to believe, confided that the 11 other national banks were suspicious of lean and agile thinking and would not be easily convinced to approve his budget to which they were contributing. Finally, the consultant suggested one more tactical implementation principle. The bank must establish a legal foundation for collaborative contracting and relationships. It did not specify any traditional thinking principles at all, a detailed list of system requirements, nor volumes of documentation. Instead, it only specified collaboration between the buyer and supplier and the use of rudimentary lean and agile ceremonies. Furthermore, it authorized product owners and developers to co-develop system requirements one iteration at a time until an MVP was completed to replace the legacy system. To everyone's surprise, the MVP was completed in only 18 months within the constraints of the small budget and timeline.
- **Healthcare Portfolio.** Finally, let's examine the case of a U.S. national healthcare portfolio. 50 years ago, a U.S. government agency was created to administer \$1 trillion in healthcare services to Americans each year. Much of this was accomplished using IT systems from the mainframe and COBOL era of the 1960s and 1970s. Like many U.S. government agencies, these systems were built one brick at a time, thousands of disconnected IT systems were produced over the decades, and no end-to-end user experience existed. It was like trying to assemble a photograph with 1% to 3% of randomly selected pixels. Buyer and supplier careers were built upon analyzing these random pixels using IT and everything was bliss. Well, sort of. Buyers realized the inadequacy of these outdated point solutions that could not process the Petabytes of data in real-time. This bred a fierce, distrustful, and confrontational culture with high power-distance between buyers and suppliers, which was a throwback to the 19th-century slave era. It's CIOs were often selected from its best and brightest IT executives. As lean and agile thinking came into vogue, it's CIOs began promulgating this new paradigm. The only problem was that the middle managers were satisfied with the old way of doing business. Ironically, the high power-distance buyer-supplier relationships naturally bred a "git-r-done" mentality, rather than traditional thinking. Although contracts specified traditional thinking ad nauseum, faced with "making bricks without straw," buyers rarely enforced them. However, contracts specifying dozens of traditional governance boards, processes, waterfall lifecycles, documents, and stage gates had degenerative effects on its supply chain. Suppliers likewise developed confrontational cultures of traditional thinking on shoestring budgets to "get the scraps falling from their master's table." Suppliers were happy to apply traditional thinking for 1% to 3% of the required resources. They could produce 75-page project plans in only a few hours but could not successfully deliver information systems. The lack of successful outcomes only exacerbated the high power-distance relationships. In a last-ditch effort to save the day before retirement, a high-level IT director specified lean and agile thinking in his contracts to modernize his portfolio. He wanted to get a new consolidated MVP done ASAP. He already had the git-r-done mentality and low power-distance with his key suppliers. He hired consultants to help him apply lean and agile thinking. Somewhat suspicious at first, his team finally came along, exhibited the key principles of collaborative contracting, and completed his MVP in only six months.