

USING SAFe 4.5 TO TRANSFORM A \$200 MILLION U.S. HEALTHCARE PORTFOLIO

Abstract

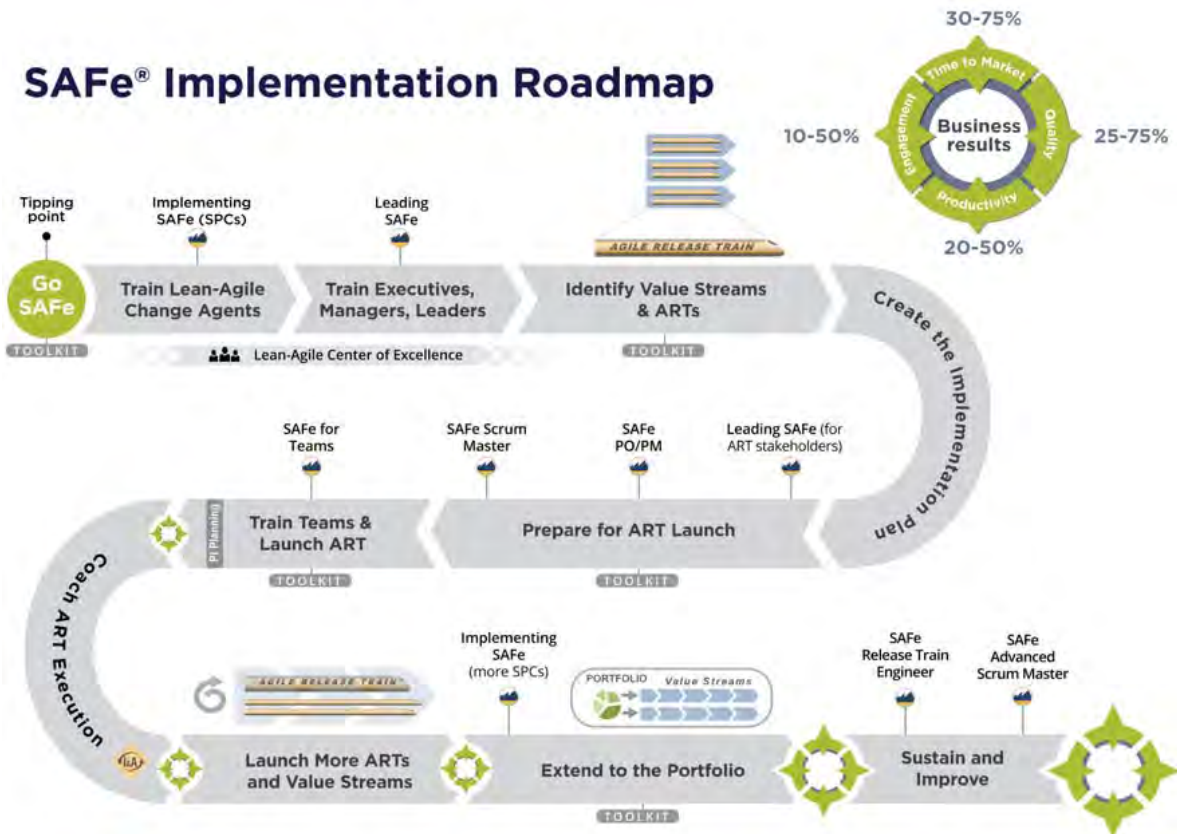
As global traditional and lean-agile push and pull-driven project and program management reach their 60th year anniversary, both traditional and lean-agile portfolio management are coming of age. That is, global organizations are beginning to apply traditional, lean, and agile thinking to the management of entire portfolios of programs and projects to yield measurable organizational outcomes. One such model is the Scaled Agile Framework (SAFe) 4.5, which is designed as a multi-level model for applying lean-agile thinking, ceremonies, metrics, and tools for designing, integrating, and aligning organizational Portfolios of Large Solutions, Programs, and Teams. In the Summer of 2017, a medium-sized firm proposed the incremental adoption of SAFe 4.5 to help modernize a \$200 million IT portfolio of a large U.S. government healthcare agency undergoing radical top-down and bottom-up lean-agile transformation to undo decades of decay, entropy, and malfunction of its deeply-embedded traditional thinking, high, power-distance buyer-supplier culture. After some initial fits and starts, the medium-sized firm began successfully applying key SAFe 4.5 principles, ceremonies, metrics, and tools at the Portfolio, Large Solution, Program, and Team levels largely through bottoms-up face-to-face lean-agile planning at the portfolio and program levels. Initial results of applying SAFe 4.5 to this \$200 million healthcare IT portfolio indicate that it is possible to apply bottoms-up real-time face-to-face lean-agile thinking, principles, practices, and ceremonies to large groups of programs representing organizational portfolios that were originally designed for smaller programs, projects, and teams to conceive of, solution, and deliver measurable outcomes or minimally viable products (MVPs) in 90-day cycles, without resorting to long-term push and plan driven schedules, requirements engineering, architecture, design, implementation, test, and evaluation cycles measured in years and decades with known failure rates of 50% to 90%.

Introduction

Project management as we know it today is believed to have gotten its start in the late 1950s with the invention of the Critical Path Method (1957) and Program Evaluation Review Technique (1958), leading to the Cost/Schedule Control Systems Criteria (1967), an early precursor to Earned Value Management (EVM). It takes about 40 years for an innovation to proliferate from concept to mass acceptance, so it is safe to say the project management discipline was well accepted by the late 1990s. Program management, or multi-project management, got its start in the 1960s and was well accepted by the 2000s. Portfolio management, or multi-program management, got its start in the 1990s and is just now coming of age, although it is only about 20 years old, widely misunderstood, and hasn't received the widespread acceptance of neither project nor program management. The Project Management Institute (PMI) defines Portfolio Management as, "The centralized management of one or more portfolios to achieve strategic objectives," using traditional thinking principles such as top-down, autocratic, long-range, push-driven portfolio planning with extremely long and even immeasurable lead and cycle times. Like the project management discipline, pull-driven lean-thinking principles got their start with the Toyota Production System (TPS) in 1950s Japan and reached their heyday in Western manufacturing firms by the 1990s. Bottoms-up agile principles for new product development (NPD) teams started in the late 1980s, were adapted to small computer programming teams by the mid-1990s, and began to reach full global proliferation or saturation by 2017. Lean-agile project management got a foothold by the early 2000s, lean-agile program management got a foothold by the late 2000s, and lean-agile portfolio management began in earnest by 2011 for large information technology (IT) portfolios. By 2011, the Scaled Agile Framework (SAFe) was fully fleshed out for lean-agile IT portfolio management and numerous competing models emerged by the mid-2010s, with many more to come throughout the early 21st century. The notion of Business Agility also got its start by the mid-2010s to shake-and-bake the entire organization with lean-agile thinking principles in one-fell-swoop, not just the IT portfolios that SAFe was designed to address. While standards, guidelines, tools, training, and even educational degrees were available for project, program, portfolio, and business or enterprise management, few models addressed these elements as an integrated framework like SAFe and Business Agility models attempted to do with holistic lean-agile thinking principles. Although humans are naturally inclined to reduce organizational lean-agile thinking to a set of top-down prescriptive step-by-step procedures, process flows, and atomic-level measurements, lean-agile thinking, true to its name, is more of a set of psychological, behavioral, and philosophical operating principles that cannot be easily reduced to a user manual for operating a predictable machine. SAFe is based upon the three-stage concept in Japanese martial arts of Shuhari (e.g., do SAFe without questioning its principles, tailor or adapt SAFe to your context, and finally, live and breathe its principles of continuous improvement with expert ease):

- **Shu** (守) "protect", "obey"—traditional wisdom—learning fundamentals, techniques, heuristics, proverbs.
- **Ha** (破) "detach", "digress"—breaking with tradition—detachment from the illusions of self.
- **Ri** (離) "leave", "separate"—transcendence—all moves are natural, becoming one with spirit alone.

Given that both traditional as well as lean-agile portfolio management frameworks such as SAFe are in their infancy, many early adopters are still in the *Shu-stage* and treat SAFe ceremonies, practices, tools, and metrics as a set of inflexible training wheels. This has its benefits, as training wheels can help young children develop balance, while serving as an easy target for skeptics, detractors, competitors, and unbelievers in SAFe or lean-agile thinking-based portfolio management. None-the-less, SAFe, even in its *Shu-stage*, is designed to yield lean-agile thinking benefits at the portfolio level out-of-the-box. SAFe even comes with a portfolio implementation roadmap, which is meant to be applied without waiver in a top-down, big-bang style, which can delay its actual *Shu-stage* implementation if the organization is large, and there are numerous portfolios, large solutions, programs, teams, and individuals. Perhaps, if all teams can be trained and certified in a few days or weeks, they can move on to its *Shu-stage* instead of a single consultant sequentially training dozens of teams one at a time.

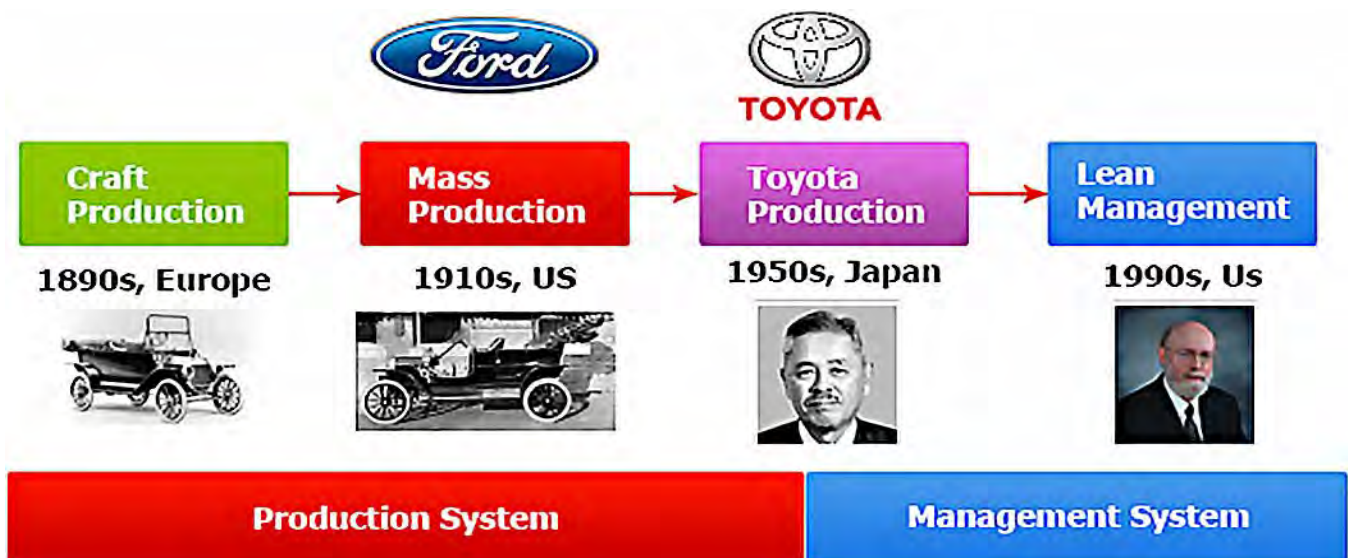


Historically, many traditional lean-agile initiatives got their start one team, project, program, and portfolio at a time in bottoms-up, just-in-time, iterative and incremental fashion by eating-the-elephant-one-bite-at-a-time. SAFe's top-down, big-bang implementation roadmap assumes executive buy-in from the top, a principle which was identified as a critical IT success factor as early as the 1950s. However, many times, top-level organizational executives are oblivious to operational-level traditional and lean-agile process paradigms and do not consider them strategic elements to organizational, enterprise, or agency success. Therefore, oftentimes, traditional and lean-agile implementation paradigms such as SAFe are successfully implemented one team, program, large solution, and portfolio at a time in an opportunistic, pull-driven fashion, sort of like one SAFe MVP at a time. This is one such case study, where a U.S. government agency awarded a \$25 million portfolio management contract to help modernize a \$200 million IT ecosystem with a half-hearted commitment to lean-agile thinking. Instead, the consulting firm proactively broke with the top-down SAFe implementation roadmap to begin implementing SAFe 4.5 one team at a time, reaching portfolio-level proficiency only 9 months into its four-year plan, while comparable organizations were still training teams 12 months into their SAFe journey. First, the portfolio management team was trained and certified in basic SAFe 4.5 principles, it stood up basic team-level Scrum practices in its first quarter, then it stood up program-level planning in its second and third quarters, and finally stood up portfolio-level planning by the beginning of its fourth quarter. Bottoms-up, real-time, face-to-face visually-intensive portfolio planning was then applied to the entire ecosystem winning over many SAFe skeptics, unbelievers, and detractors by the beginning of the fourth quarter, and SAFe program entered *Ri-level* transcendence. Up until the SAFe tipping point was achieved in the fourth quarter, portfolio management team effort was peaking, while customer satisfaction was bottoming out, leading to a simultaneous crisis of confidence and unprecedented success.

Background

Both traditional and lean-agile portfolio management models like SAFe 4.5 properly belong to the class of tactical, operational, or, more appropriately, process or process improvement models, frameworks, and paradigms. There was a raging debate among Western economists about the importance, significance, or relevance of such models, particularly among Ivy League thinkers such as Michael Porter and David Teece. Porter argued that only strategy or strategic management mattered to the success of Western firms, thus giving rise to the aristocratic class of the Western CEO, who was paid 300 times more than the average worker and frequently donned Ivy League credentials and, likewise, a matching IQ. Teece like many economists, business strategists, and management scientists before him, argued that the operational efficiency of the organization was at least as important as the overall organizational strategy, and perhaps, by association, the ordinary factory worker as well, who was not quite as well compensated, educated, or worshipped like its CEO. Scottish economist, Adam Smith, penned his infamous, *Wealth of Nations*, in 1776, kicking off a firestorm of Western manufacturing systems to lift the worldwide industrial machine from the ashes of the artisan, craftsman, or job shop era, which had devilishly enslaved human society for more than 40,000 years to the unreliable, unpredictable, and inexorably slow one-off output of artists, blacksmiths, carpenters, farmers, and other day laborers. Adam Smith's ideas kicked into high gear in 1911, when Western great, Frederick Taylor, created his infamous treatise on the *Principles of Scientific Management*. Taylor ignited the Western System of Manufacture and Fordism enabling North American firms to mass produce millions of machines for the exploding consumer market with a somewhat predictable level of quality, cost, and timing. However, natural resources were overabundant in the Western Hemisphere, which is why European immigrants seized control the Americas with fierce aggression from its native inhabitants only 100 years earlier. The overabundance of natural resources and the primitive nature of Scientific Management, Western System of Manufacture, and Fordism gave rise to unprecedented waste and pollution, almost poisoning the inhabitants of the Western hemisphere to death by the mid-1900s, until scientists like Clair Cameron Patterson fought single-handedly to bring attention to this crisis. Apart from this, early behavioral scientists such as Mary Parker Follett (1925) fought for the rights of common factory workers who labored 16 hours a day, seven days a week in poorly lit and ventilated manufacturing firms, arguing they were human beings, not slaves, and their opinions, feelings, and ideas mattered just as much as their white male task masters (CEOs). Organizational behavior would continue with increasing fervor for the next 50 years, but never quite reach wide acceptance until the early 21st century with treatises such as Dan Pink's textbook entitled, *Drive* (2009). By this time, Western CEOs were paid in the hundreds of millions of dollars while ordinary factory workers continued to earn slave wages, when they were employed at all, as the industrial revolution or Western manufacturing era drew to a sudden close. People like W. Edwards Deming and Joseph Juran created their quality revolution around the same time Follett argued for worker rights. In other words, Deming and Juran wrapped Taylor's *Principles of Scientific Management* around Follett's notion of using the ideas of common factory workers into an integrated paradigm of Plan, Do, Check, and Act (PDCA), whereas Taylor sought to deepen Smith's *Principles of Division of Labor*. Literally rising from the ashes of World War II like a Phoenix, Japanese firms such as Toyota blended the ideas of Ford, Deming, Juran, Follett, and even just-in-time principles from Clarence Saunders (founder of Piggly Wiggly). William Whyte's *Spindle* was even tossed in for good measure, which was highly compatible with Japan's own notion of a Kanban, signboard, or shingle, indicating when a mom and pop shop was open for business. Japan had some unique constraints not found in the Western World (e.g., bombed back to the Stone Age after World War II; zero natural resources; culture of mastery, perfection, and continuous improvement; body language or visually-intensive communications vs. written or spoken language; and the need to communicate with an external world and create national-scale manufacturing systems using the simplest possible means with the greatest possible impact, outcome, or economic result). With a rather meager population, a foreign concept to Europe and America, they didn't have time to enslave its workforce at the mercy of a few highly-paid CEOs, but involve everyone in the process of restoring Japan to its former pre-World War II glory. Of course, it helped that Japan, like many Far Eastern, Middle Eastern, and Oriental nations and cultures were built on the notion of strong family units, ancestor worship, clans, fiefdoms, consensus, collaboration, and teamwork much like native American tribes, who are now believed to be interrelated. Japan's bottoms up, just-in-time system of manufacturing (TPS) was thousands of times more efficient and effective than anything ever conceived in the Western Hemisphere, while Porter continued to amass a library of textbooks extolling the worship of the American CEO as a demigod. Ironically, it was Japan that worshipped its emperor as a Godman. When the Organization of the Petroleum Exporting Countries (OPEC) formed its cartel in 1960 and began regulating oil prices to combat Western aggression in the Middle East, the long-term push-driven strategic plans of Western CEOs fell flat on their face, plunging the Western manufacturing industry into a crisis from which it would never recover. Japan's Phoenix was suddenly revealed in all of its glory and global economists began heralding the death of Western Capitalism by the 1980s. A few American engineers began promoting TPS principles at Ford, Chrysler, and General Motors to compete with Japan, but were quickly dismissed as irrelevant. In other words, American CEOs revealed their

belief that tactical operational principles, processes, and efficiency were irrelevant to the success of Western firms as Michael Porter and a pantheon of Western philosophers taught them for 200 years. The few Western manufacturing firms who survived OPEC's and Japan's economic attack on the Western Hemisphere began adopting TPS principles by 1990 and even the IT industry began exploring these ideas by the mid-1990s. Based on many notable earlier failed attempts such as Incrementalism, Iterative Delivery, Evolutionary Design, Spiral Model, Rapid Prototyping, and Joint Application Development, Scrum (1994) and Extreme Programming (1998) emerged to oppose heavy-handed, top-down autocratic command and control models like the Project Management Body of Knowledge (PMBok), Systems Engineering Handbook, and Capability Maturity Model, optimized to produce myriads of unneeded waste products to support knowledge transfer across extremely complex three to five decade long U.S. military weapon systems projects such as planes, trains, and automobiles. The false hypothesis behind these models was that infinite complexity was actually manageable. Fighter jets, missiles, warships, satellites, and other physical, capital-intensive systems took decades to produce and lasted decades beyond their intended operational lifetimes. This disparity was first chronicled by Kim Clark in his 1991 textbook, Product Development Performance, which noted Japan's, America's, and Europe's cycle time from concept to operations was 4, 8, and 12 years, respectively. In other words, it took Japan 4 years to field a new automobile with little waste, cost, and defects, while the U.S. DoD took 30 years to field a fighter jet with 90% waste, inordinate cost (trillions of dollars), and thousands of defects. For instance, when the U.S. Army Apache helicopter was fielded in Desert Storm (1990) 20 years after its inception, 70% of the units did not work and its malfunctioning weapon systems were attributed to numerous friendly fire casualties. By 2001, 75 years after Mary Parker Follet envisioned her new world, Scrum and XP amalgamated into the Agile Manifesto (e.g., Individuals and interactions over processes and tools, Working software over comprehensive documentation, Customer collaboration over contract negotiation, and Responding to change over following a plan). Even complex TPS principles designed for global manufacturing firms were also distilled into simple Kanban processes for small IT teams around this time. Lean-agile IT proponents began scaling their ideas up to larger and larger teams with Lean-Agile Project Management (2004), Lean-Agile Program Management (2007), Lean-Agile Portfolio Management (2011), and Lean-Agile Business or Enterprise Management (2015). If Japan had already stabilized TPS by the 1970s and 1980s, one might ask why it was necessary to scale them down to IT teams in the 1990s and then scale them back up only 20 years later to the enterprise in the 2010s? For one, TPS was created for complex, capital-intensive machinery with cycle times measured in years, while small IT teams could field new software systems in hours, days, and weeks. With the global proliferation of the Internet in the 1990s, cloud-computing-based data centers, and microservices, Western IT firms could now field 10,000 new IT products and services to billions of global end-users in fractions of a second. When your cycle time is a fraction of a second, TPS in all of its full glory simply doesn't make sense. Whereas IT systems were merely a flashy business enabler, accessory, or convenient but unneeded tool in the 1950s and 1960s, 99% of 21st century Western firms such as Google, Yahoo, Microsoft, Amazon, Ebay, Apple, Samsung, Verizon, etc. were now built solely upon IT. Take away the IT and these firms ceased to exist. Thus, lean-agile portfolio management frameworks gained widespread popularity by the 2010s to function as a lightweight tactical operational framework for IT-intensive businesses. The only problem was that Western firms were convinced that business strategy was still more important than tactical operational process models like SAFe, and will continue to dismiss process paradigms as irrelevant for at least another one or two decades until that generation of manufacturing era thinkers fades away.

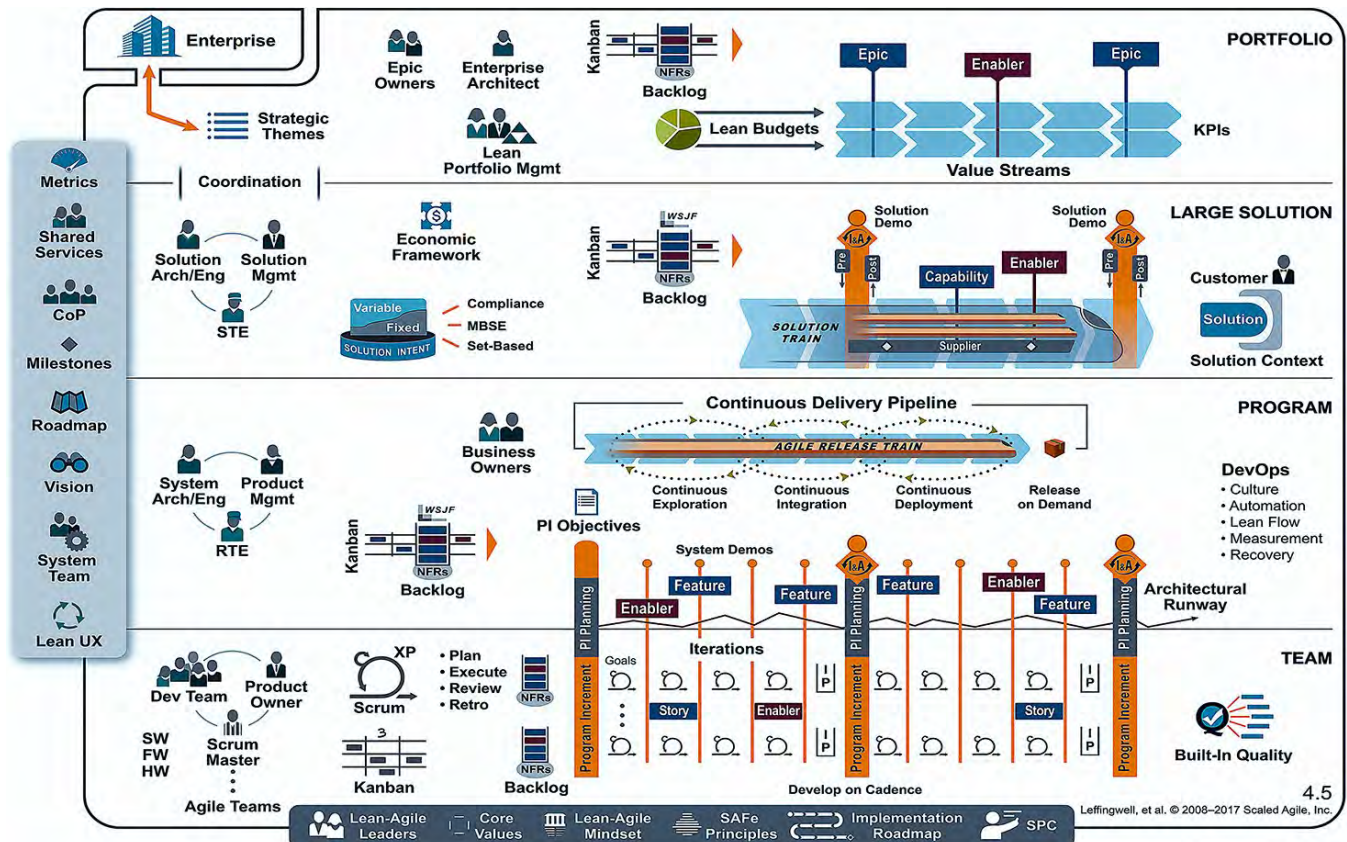


Significant Challenges

There are a variety of interrelated challenges associated with implementing lean-agile portfolio management models such as SAFe 4.5. For one, traditional thinking paradigms such as linear, top-down, command-and-control, process and documentation intensive predictive models such as project, program, and portfolio management are entering their golden age. CMMI, ISO 9001, PMBoK, PMgP, PfMP, and a myriad of other megatrends rooted in the 20th century still dominate NPD. These include producing scope-heavy plans; an integrated master schedule (IMS); business and system requirements; enterprise and system architectures, infinitely complex hierarchies of data and other design models; complex open-loop solutions; and late-big bang test, evaluation, and certification. Extremely large organizations are consolidating their portfolios to achieve Ford-era economies of scale and even government agencies are creating legally-binding federations not unlike cartels to regulate acquisition, management, and technical policies, integration, and data sharing. These coalitions are drawing upon late 20th century paradigms cited earlier. Meanwhile, lean-agile paradigms have reached 95% global saturation among small IT teams, Internet end-users now exceed 4 billion people exchanging trillions of packets of information in real-time, and lean-agile thinking has also deeply penetrated the North American healthcare industry gripped in an insurmountable regulatory, economic, and legally bureaucratic morass hindering innovation, speed, safety, and proper administration of basic healthcare services. The Western Hemisphere is in a post-industrial state of large, medium, and small information technology intensive firms free from the constraints of multi-billion-dollar capital-intensive manufacturing investments reducing lead times from decades to fractions of a second. In other words, extremely small IT teams can bring non-capital-intensive MVPs from concept to cash in only a few hours; distribute them to billions of global end-users in fractions of a second; and repeat this cycle over and over again in a matter of minutes, hours, and days to isolate the characteristics that yield the greatest market share gains, revenues, profits, and customer delight. But, what about the large public sector agencies, manufacturing firms, and other quasi-technological business bureaucracies with complex portfolios, capital-intensive business operations, and hundreds if not thousands of employees left over from the 20th century? Can lean-agile thinking paradigms such as Scrum, XP, and Kanban teams be applied to these Jurassic-era megadinosaurus? Small teams within these massive gas giants can certainly apply lean-agile models, but isolated against their non-lean-agile operations and traditional project teams, they have little to no effect. Implementing a highly-successful lean-agile team in a massive traditional bureaucracy is like waxing a rusted-out tractor from 1945 and trying to pass it off as a Ferrari—it simply doesn't make sense! Is it possible to scale lean-agile thinking to larger segments of monolithic organizations such as complex multi-project programs, portfolios, and the business enterprises themselves? Is it possible to make the elephant dance? We understand how customer collaboration, teamwork, iterative development, and continuous improvement thinking, values, principles, practices, tools, and metrics apply to small teams, but can these be applied to larger organizations, portfolios, value streams, and systems of systems? We understand there is no substitute for bottoms-up face-to-face communications when solutioning and deploying small MVPs to billions of global users, especially with a DevOps-intensive fabric, ecosystem, pipeline, automated platform, or cloud infrastructure. But, can portfolios, businesses, or organizations with hundreds or thousands of workers employ bottoms-up face-to-face communications without resorting to WIP-intensive paradigms such as CMMI, complex enterprise architectures, or linear process and document-intensive NPD models? Well, that's exactly what SAFe 4.5 is designed to address (i.e., how to scale lean-agile thinking up to larger portfolios consisting of hundreds and thousands of people without sacrificing speed, agility, or quality or resorting to traditional thinking). Okay, but, if we were to believe that large portfolios, whether IT or capital-intensive products and services, could successfully apply non-WIP intensive lean-agile thinking principles at scale and still innovate at the speed of light like small MVP teams using DevOps, certainly it would take years and perhaps even decades to institutionalize this lean-agile organizational culture change, right? As we alluded to earlier in this treatise, large new product and process innovations take about 40 years to proliferate throughout the global industry. Even early CMM initiatives took about two or three major multi-million-dollar thrusts over decades to gain some momentum. And, now that over a trillion dollars was spent baking traditional thinking into the global consciousness, how will it be possible to institutionalize SAFe thinking in a short period of time? Is it even possible? Large scale organizational change is difficult. Just ask Mary Parker Follet, W. Edwards Deming, Joseph Juran, Eiichi Toyoda, or James Womack. The thought of replacing well-entrenched traditional thinking with contemporary lean-agile thinking models such as SAFe is enough drive otherwise stable people to the edge of sanity, or is it? Is lean-agile thinking just another passing fad? Worse yet, has it already passed, but lean-agile proponents missed the boat? Do newer paradigms such as DevOps supplant rudimentary lean-agile models? What about Michael Porter, do lean-agile portfolio management models such as SAFe have any strategic value? What about the post-industrial executives themselves who make 300 times more in salary than ordinary workers by sheer virtue of their intelligence, multi-tasking abilities, and short-term commitment to any strategy beyond 90 days? Does SAFe matter to them and can it be implemented before their hearts, minds, bodies, and souls are attracted to the next shiny object like fish in a wild stream star-struck by glistening lures?

Portfolio Management Framework

As alluded to throughout this treatise, dozens, if not hundreds of process methodologies, models, and frameworks for lean-agile thinking at the team, project, program, system of system, portfolio, and overarching organizational enterprises have emerged over the decades. They are far too numerous to mention here, but there are many fine research papers, technical reports, videos, websites, and even textbooks, which attempt to catalogue and describe these variations. At the small team-level, lean-agile frameworks such as Scrum, Extreme Programming (XP), Crystal Clear, Dynamic Systems Development Method (DSDM), Feature Driven Development (FDD), Kanban, and even Scrumban emerged in the 1990s. At the project-level, lean-agile Agile Project Management (APM) frameworks emerged from authors such as Rob Thomsett, Jim Highsmith, Doug DeCarlo, Bob Wysocki, Sanjiv Augustine, Mark Layton, and many others. At the program and portfolio-levels, lean-agile frameworks such as Enterprise Scrum, Scaled Agile Framework (SAFe), Discipline for Agile Delivery (DAD), Recipes for Agile Governance (RAGe), Large Scale Scrum (LeSS), Scaled Professional Scrum (SPS), Nexus, and Scrum@Scale have emerged, with many more yet to come. While DAD and LeSS have their supporters, SAFe emerged as the global leader as a multi-level model of lean-agile portfolio, large solution, program, and team management.

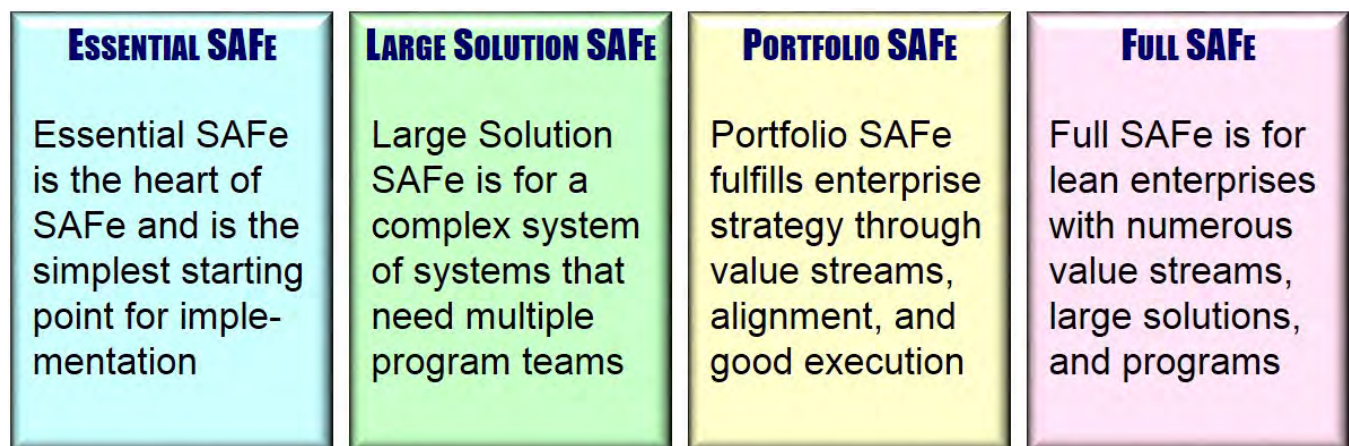


SAFe is an IT governance model and set of tactical guidelines and operational workflows for applying lean-agile values, principles, practices, and tools at the firm, organizational, agency, portfolio, acquisition, system of systems, or large program context. That is, SAFe helps larger groups of people, projects, programs, functions, and operations realize the benefits of lean-agile thinking, such as shorter lead and cycle times, increased productivity, higher quality, and lower costs. More importantly, SAFe is a 21st century model for rapidly producing high-quality innovative products and services under conditions of high-risk, uncertainty, and technological change that delight our customers in the most effective, efficient, friction-free, collaborative, and automated manner, while simultaneously improving quality of work life.

While SAFe's historical context is the ability to align and coordinate the work of multiple lean-agile teams to rapidly design, develop, test, and deliver innovatively new products and services; true to its name, SAFe is scalable, tailorable, or configurable to multiple program contexts. That is, SAFe can be tailored to a single program; a program of programs or systems of systems (large solutions); a portfolio containing multiple large solutions, programs, projects, teams, functions, and operations; and/or an entire firm, organization, enterprise, or agency. The lean-agile revolution began in with the advent of Japan's Toyota Production System (TPS) in the

1950s, took hold of Western manufacturers 30 years ago, and garnered the attention of software development teams about 20 years ago. However, one of the most pressing issues is the notion of business or enterprise-level agility (lean-agile enterprise thinking), which places SAFe clearly in the center of this phenomenon.

- **Portfolio Level.** From a portfolio standpoint, SAFe enables organizations to perform portfolio strategic, governance, performance, communication, and risk management using lean-agile thinking in a fully integrated, aligned, efficient, and effective manner to ensure the entire portfolio is constantly producing business value in a high-quality manner at a sustainable pace.
- **Large Solution Level.** From a program of program or system of systems standpoint, SAFe enables organizations to perform program strategy alignment, governance, life cycle management, benefits management, and stakeholder engagement using lean-agile thinking to rapidly identify, solution, realize, and evaluate epics or minimum viable products (MVPs) from a portfolio-level Kanban, new product development funnel, or stage-gate funding model using secure petabyte-scale public and private clouds, self-serve business analytics, and emerging information technology (IT) stacks.
- **Program Level.** From a single program or project standpoint, SAFe enables organizations to perform project integration, scope, time, cost, quality, human resource, communications, risk, procurement, and stakeholder management using lean-agile thinking to engage the entire program or project team in a single two-day Program Increment (PI) or "Big Room" planning event every 90 days to develop visions, roadmaps, releases, milestones, architectural runways, features, user stories, dependencies, and risk mitigation plans to rapidly realize an MVP in only two or three PIs or system releases (3 to 9 months).

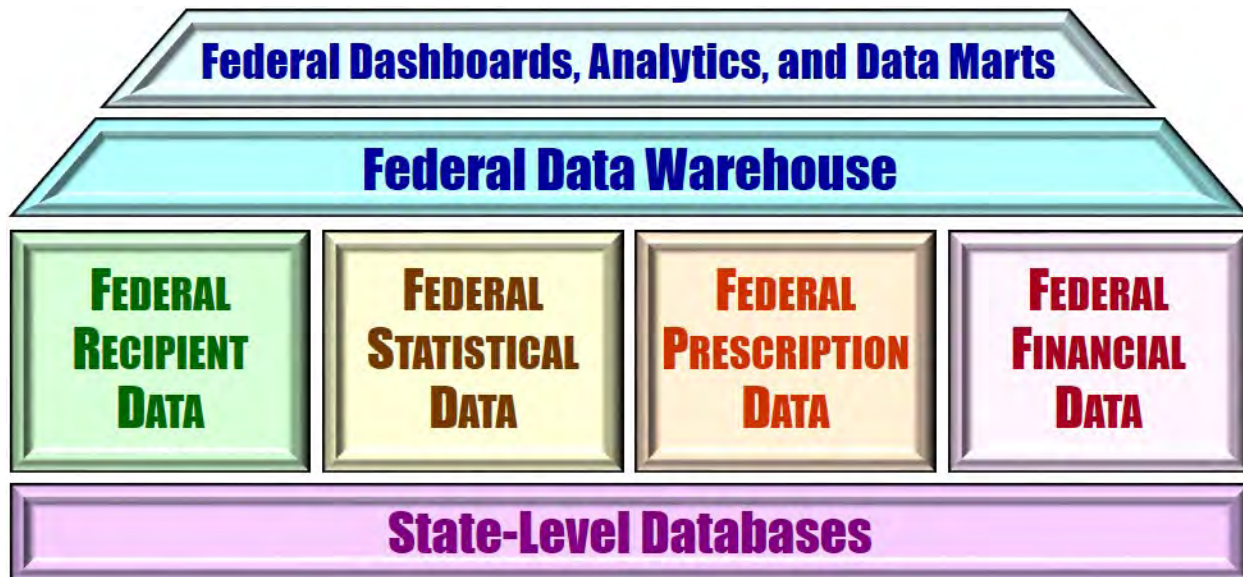


SAFe is a multi-level, multi-configurable lean-agile thinking framework consisting of Essential SAFe—Program and Team Levels, Large Solution SAFe—Large Solution, Program, and Team Levels, Portfolio SAFe—Portfolio, Program, and Team Levels, and Full SAFe—Portfolio, Large Solution, Program, and Team Levels. Regardless of the SAFe level one selects, its creators recommend a top-down, big-bang implementation approach consisting of training all personnel; identifying and establishing value streams, solution trains, and release trains; and starting all at one time. Of course, other implementation alternatives may be applied, such as bottoms-up incremental implementation where teams are identified, trained, and established using basic lean-agile frameworks such as Scrum, Kanban, or Scrumban. Once individual teams have a basic lean-agile proficiency, individual program team groupings may be identified, trained, and established in Essential SAFe practices such as Agile Release Trains (ARTs). Following this line of thinking, once individual ARTs have stabilized and demonstrated some level of Essential SAFe competency, these program groupings may be identified, trained, and established in Large Solution practices such as Solution Trains (if necessary). Finally, SAFe Portfolio Level practices may be utilized and portfolios of Value Streams, Solution Trains and ARTs may be identified, trained, designed, and established.

Unlike traditional 20th century thinking and governance models, SAFe is constantly evolving, improving, and strengthening itself to include emerging concepts such as Continuous Integration (CI), Continuous Delivery (CD), DevOps, DevSecOps (DevOps + AppSec), Cloud-based Microservices, and Rapid 5x5 (experimental) Market Hypothesis Testing. More importantly, SAFe is not overly bureaucratic, nor does it take years and decades to deploy its basic tools and practices. Although many people view SAFe as an unyielding set of prescriptive practices, ceremonies, metrics, and tools, SAFe is really a comprehensive set of lean-agile thinking values and principles. SAFe is not just a set of inflexible ceremonies and metrics for planning, organizing, and developing thousands of requirements. Rather, SAFe is a lightweight NPD framework for rapidly deploying a series of MVPs to tease out market needs, isolate value adding characteristics, and converge upon optimal market solutions.

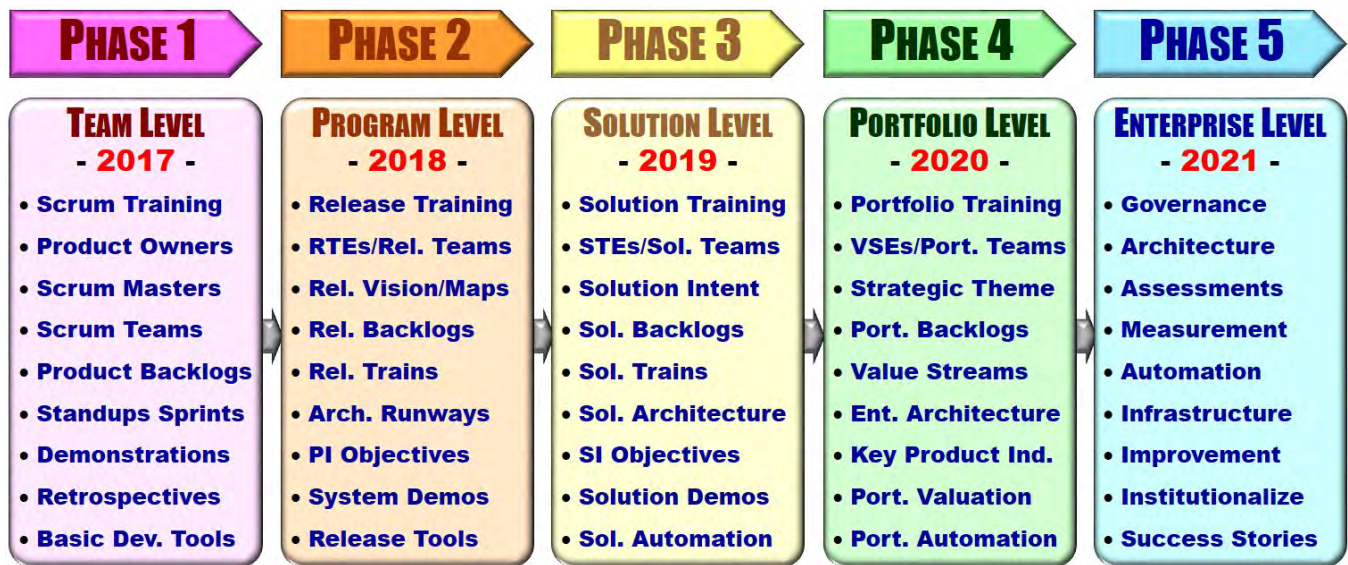
Implementation Plan

The client was a major U.S. government healthcare agency, with an annual operating budget around \$3.5 billion. However, this agency administered about \$1 trillion in healthcare benefits to Americans each year. It was roughly divided into two segments, one for administering healthcare benefits to retirees and the other to poor and underprivileged Americans. Our contract was with the latter, the segment that administered about \$600 billion to 75 million poor and underprivileged Americans each year. It was difficult to say how large this segment was, but rough estimates were that it managed a \$200 million portfolio of 35 to 45 major federal-level IT systems. The division itself may have administered another \$2 billion in IT funds to U.S. states and territories, so they could manage another 1,000 or more state-level IT systems. The states themselves may have been granted another \$2 billion in local funding, bringing the total IT budget for administering annual healthcare benefits to poor and underprivileged Americans into the range of \$2 to \$5 billion annually. It's difficult to say exactly how many IT systems there were themselves, as this community sought to modularize its systems and acquire them one function at a time. Each of these so-called modules were often designed by commercial healthcare with proprietary databases. In other words, there were more than 1,000 individual databases with unique data schemas or data models spread across the U.S., in addition to the 35 to 45 federal level IT systems. The major dilemma was one of so-called, "Data Quality" (e.g., how to gather and sift through the data from these federal and state-level systems in order to form a coherent picture of U.S. national healthcare benefits administered to poor and underprivileged Americans each year). In other words, how many people were in the system; what was their age, gender, ethnicity, income, condition, etc.; and what benefits did they need and were getting or not getting; and, of course, were they benefiting? The data from these disconnected systems was so fragmented that there was no way to form a coherent picture of these recipients, most data were decades old, and few of the systems could keep up with the backlog of federal, state, and local regulations. In fact, few of these systems had ever caught up to the most infamous of these regulatory changes (e.g., Affordable Care Act—Obamacare).



The goal of our contract was to provide portfolio management services for the modernization of the federal-level IT systems. State-level healthcare data for poor and underprivileged Americans was manually fed into the four major Pillar systems. A new federal-level data warehouse needed to be designed and constructed to house the data from pillar systems. From that, federal dashboards, analytics, and data marts could be constructed to data mine the data warehouse for business intelligence purposes. That is, determine the overall health and status of the federal-level healthcare services amounting to \$600 billion annually. The results were to be used by the healthcare agency's executives as well as national lawmakers. States fed data into the federal-level pillar systems but did not get any reports back. In fact, states had not received any acknowledgement of their data in nearly 15 years. The goal of our contract was to help the government fast track the development of the federal-level data warehouse to mitigate these issues, close the loop, provide reports to and from the states, and most importantly of all, to federal lawmakers and federal program administrators. The data coming in from the states was hopelessly fragmented, pillar systems were grooming the data further, and the teams responsible for the federal dashboards, analytics, and data marts were further grooming the data in order to generate well-behaved reports. The results of all of this grooming rendered the data useless, so part of our contract was to develop a unified, federal-level healthcare data model to minimize the necessity of the data grooming, dilution, and corruption.

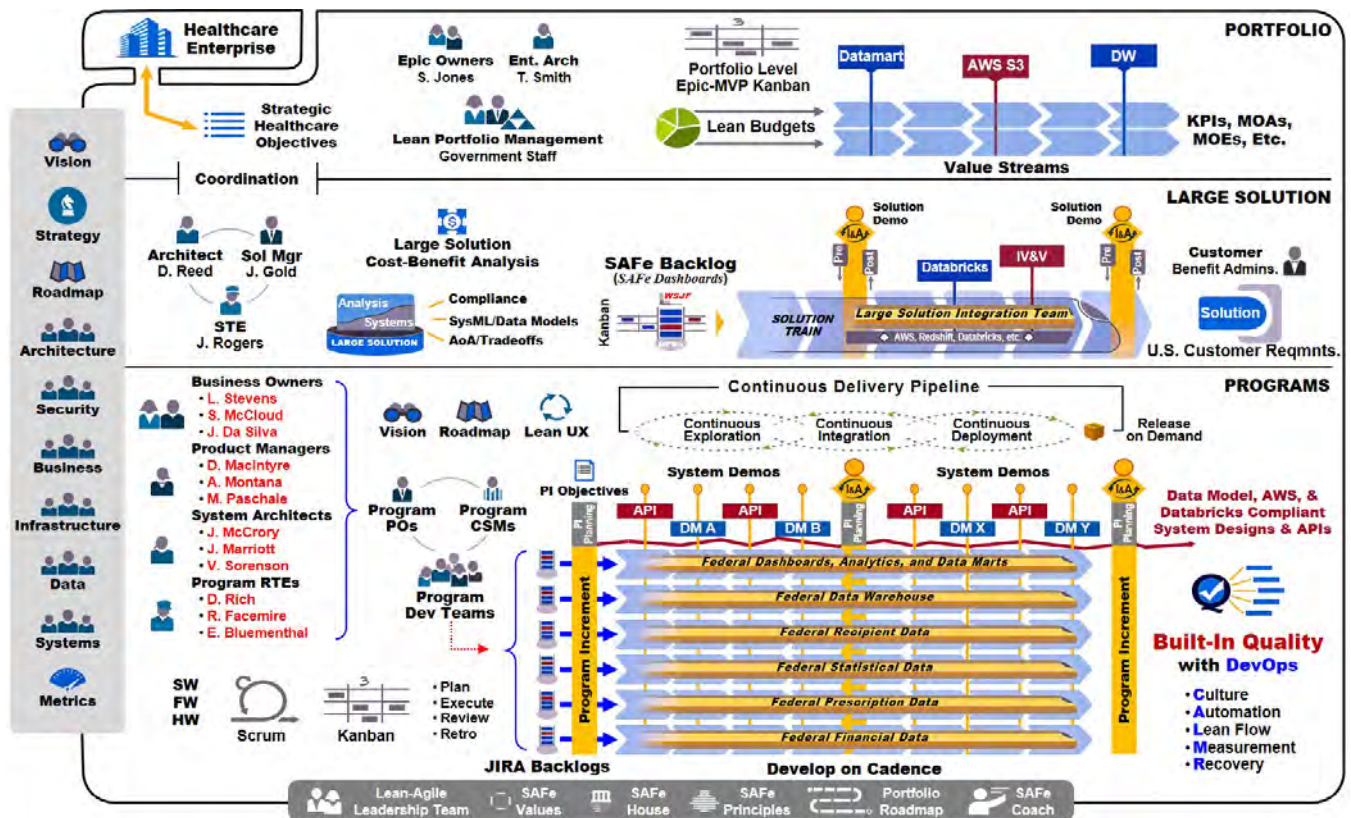
Given the immense scope of this 41-page, 12-thousand-word SOW to be all things to everyone with very little explicit authority, including lean-agile thinkers to a portfolio whose exact state of lean-agile maturity was not known, we were faced with several challenges. Some of these included, do we apply the Zachman Framework, CMMI, our client's waterfall lifecycle, Scrum, SAFe, etc. Our team decided to throw a Hail Mary and propose SAFe as the primary approach for managing this portfolio in lieu of the other alternatives. It was a rather large risk, our government IT executives were instinctual lean-thinkers, but did not have any formal indoctrination in lean-thinking principles, they'd never heard of SAFe, and the SOW could be interpreted in any one of a million different ways. In fact, to go all-in on SAFe, as we did, was pretty much to ignore about 95% of the SOW's content. And, if, per chance, our contract bid was selected, did we have the authority, expertise, and buy-in from the government as well as the pillar contract staff to subject them, not only to lean-agile thinking principles, but SAFe explicitly? In the end, it was the perfect storm, the authority of our government customer's division was in the hands of a single technically-oriented director, who called himself a "Technocrat," all he wanted was to "git-r-done" (Data Warehouse) with the least amount of process bureaucracy necessary (WIP), we had a history providing project management services with this client, we proposed some strong cloud computing experts, and our cost was just about right (smack dab in the middle of his goldilocks zone, sweet spot, or center of percussion).



Now that our team converged upon SAFe, although not without intense consternation, our next task was to choose a SAFe implementation plan. Our client had deeply entrenched traditional thinking culture. Although it was lean and mean in its budgeting and execution, there were many communities of practice promoting traditional models such as CMMI, ISO 9001, and PMBoK. Its suppliers also embraced traditional practices and had active CMMI, ISO 9001, and PMBoK initiatives, including our firm, that was well on its way to CMMI Level 5, in spite of its few resources like every other supplier in this community. When our client's CIO began pursuing lean-agile thinking in earnest, contractors merely added Scrum to their vast repertoires of traditional practices. The selection of SAFe by our team, came at a great cost, because our middle managers were all-in on traditional thinking, were silenced by the sudden interest in SAFe, and quickly exited the firm. The first question we asked ourselves was whether to go-all in, train the government executives, middle managers, contractor PMs, and development staff in SAFe; stand up value streams, solution trains, and release trains; have them begin program increment planning, synchronize their iteration and release cadences; and begin reporting SAFe metrics. The second option was to incrementally prepare our portfolio from the bottom up, first ensuring teams were applying lean-agile practices and then gradually move up into programs, solutions, portfolios, and the enterprise itself. We also considered a third option, situational Agile Release Trains (ARTs) to quickly address pain points, high priority initiatives, and quickly plug any massive holes in the hull of our ship. We proposed an incremental plan, which included not only SAFe practices, but other key customer IT transformation initiatives, such as data quality, cloud computing, application security, user experience, etc. Although our team had several years of experience with this client, it was surprising how little we knew of the culture, state, temperament, and operating philosophy of its executives. We were soon to discover that our client had a high, power-distance culture, and had isolated our firm's past involvement to very small-scoped initiatives as it did with all of its suppliers (e.g., divide and conquer, need-to-know, etc.). Therefore, we were the first contractor in the history of this division that was given so much insight into its entire portfolio. Of course, hindsight is 20-20 and our cautious, bottoms-up incremental approach served us well, even though we could have applied situational ARTs to repair big problems lying dormant for decades.

Program Context

Upon winning our contract, we staffed our program with personnel who had the requisite skills, qualifications, and experience. This wasn't the largest contract our firm held, but it was one of the highest profile ones to-date. Many new process and product technologies would be showcased, such as state-of-the-art lean-agile portfolio management methodologies like SAFe and streaming analytic engines like Apache Spark and Databricks hosted by on-premise AWS data center clouds. We hired a program director with direct experience managing large-scale U.S. government contracts using lean-thinking principles. The deputy program manager also had many years of experience supporting this customer and was instrumental to understanding the culture, politics, and pain points. We hired one of the nation's top U.S. government Digital Services experts, who was a DORA DevOps assessor. We also hired a SAFe coach, nationally-recognized data modelers from big-six consulting firms, and of course the community's top AWS and Apache Spark and Databricks designers. We also hired top-notch information security engineers, product owners with deep knowledge of our customer's business requirements domain, and some of the region's top independent verification and validation (IV&V) engineers. We appointed our firm's top project coordinator with successful experience in our customer's git-r-done culture to kickstart the program, ramp up quickly, get the lean-agile thinking engine started, and keep everyone moving forward. As we'll discuss later, we also hired one of the state's top SAFe-based Agile Lifecycle Management (ALM) tool experts.



We procured two-rounds of SAFe training and certification for the entire staff in the first couple of weeks, trained and certified our staff in cloud computing principles, and began internal SAFe and DevOps training courses to deepen their understanding of SAFe principles. We stood up our basic SAFe ALM tool, documented our SAFe implementation plan in greater detail, sifted through our 41-page, 12,000-word SOW, and identified the initial Epics, Capabilities, Features, and Tasks. From these, we constructed our first PI objectives, PI plan, Iteration Backlogs, and began constructing, validating, and delivering our highest-value adding features. We also began Daily Standup Meetings, Iteration Demonstrations, Iteration Retrospectives, and of course, our first PI Demonstrations and Retrospectives as well. We identified our initial set of internal operating metrics and began collecting and tracking them too. We collected all of the documentation we could muster up on the existing pillar programs and began solutioning, not only the federal data warehouse technology stack, but replacement stacks for the pillars as well. Of course, we had to map the SAFe model to our portfolio's context, identify any existing pillar ALMs, and begin mining them for data, metrics, and direct network connections to our SAFe ALM as a central repository. Most of our own team, save the SAFe Coach and SAFe ALM tool expert, had never been trained in, utilized, nor understood the application of lean-thinking values, principles, practices, tools, and metrics.

Program Execution

The exact scope was a little unclear from the get-go and evolved several times over the course of the first year, which is par for the course. There is a clear divergence between theory and practice when it comes to IT contracting. Government agencies wish to lock-down the scope in very specific legal terms in order to control costs and outcomes. Real human needs can rarely be captured in-writing, so any attempt at transcribing them before, during, or after a contract is written is futile, because they only represent a moment in time by a very unique writer. When many contract writers are involved, which is typically the case, then a contract is only the utterances of many people at a point in time, but not the true needs of any one of them, and certainly doesn't represent a coherent consensus. Some pillar-level contracts existed in the past for lightweight project management administrative assistance. With the availability of greater IT budgets, this government division sought to procure portfolio management services for the completion of a federal-level data warehouse, along with the integration of the four major pillar systems. True to the Pareto principle (80:20 rule), the lion's share of the scope, issues, and risks were in the state-level systems. The first 90 days focused on updating the 15-year-old data marts, the second 90 days focused on fast-tracking the data warehouse, the third 90 days focused on project management services to the four pillar areas, and the last 90 days of the first year focused on shepherding the state-level data into the four pillar systems, as well as defining federal metrics, dashboards, and analytics.



- **QUARTER ONE.** The **first major task** our portfolio management team initiated was a U.S. Digital Services Playbook-style session with the government and contractor leads of our healthcare portfolio. The goal was to do a SAFe PI or Big Room-style planning session with 75 or more participants to identify, formulate, and codify the vision, goals, objectives, values, and operating principles of our portfolio modernization program. Our Digital Service consultant was a former government worker himself, helped form the U.S. Digital Services Playbook, and was an expert in large-group facilitation, bottoms-up decision-making, visualization, and big room planning principles in-general. We gathered hundreds of responses, analyzed the data, groomed and categorized it, formed a digital services playbook of our own, and continued to socialize and refine it with other government managers. The output of this activity was for our team, along with the government, to begin formulating an overall strategic plan for our modernization initiative. The **second major task** our customer requested of our portfolio management team was to plan, organize, participate in, and coordinate the updating of the 15-year-old data mart data models to make them ACA compliant. Once again, we brought together all of the government and contractor leaders together, our government technical lead communicated his goals and objectives, and our team kicked off our first SAFe PI planning session for our portfolio management team to track these features, user stories, and tasks. We assigned a subgroup of data modeling experts to continue modernizing the 15-year-old data mart data models, which would take the rest of the year after an initial surge of activity. The **third major task** we pursued was a variety of preparatory activities to further lean-agile thinking. We continued one-on-one SAFe and DevOps coaching and mentoring sessions throughout the first 90-day period with the portfolio management teams, company executives and middle managers, customer executives and middle managers, and the leaders of the other portfolio programs as well. Our portfolio management team was

asked to support our company business development staff in their pursuit about \$300 to \$400 million worth of SAFe healthcare contracts during this time, about \$300 million of which was successfully obtained in the next 12 months. We continued to gather SAFe and DevOps case studies, training videos and briefs, information on SAFe ALM tools, and do a deep dive into the mathematics of lean-agile thinking in order to establish the economic business case for our internal and external SAFe initiatives. We were asked to give DevOps briefings to Lockheed-Martin's trillion-dollar fighter jet division and began preparing materials for a large-scale SAFe rollout within our government customer's healthcare portfolio. We also began gathering SAFe assessment instruments to evaluate the maturity, readiness, and state-of-lean-agile thinking within our portfolio's teams. We also gathered numerous materials on how to apply SAFe and lean-agile frameworks to data warehouses, self-serve streaming business analytics, and enterprise identity management consolidation initiatives.

- **QUARTER TWO.** The **fourth major task** our customer requested was for our portfolio management team to set up portfolio-wide governance charters, processes, and forums. That is, our team had to design, establish, and facilitate bi-weekly meetings among all of our customer's program management teams. This also included an intake process for new requests from government middle managers for portfolio and program management assistance from our team. The **fifth major task** our customer requested was for our portfolio management team to participate in the detailed design, review, assessment, implementation, and validation of a new federal-level consolidated data warehouse. It had passed a government preliminary design review about six months before our contract award, but now needed to be finalized and shepherded through the various government stage gates. Since our team had deep knowledge of cloud computing and streaming analytics, our team was instrumental in creating the detailed design and providing implementation guidance to the data warehouse program. The **sixth major task** our customer requested was for us to participate in the Integrated Product Team (IPT) meetings for the data warehouse and each of the four major pillar programs. The goal was to familiarize our team to the major portfolio level goals, objectives, implementation plans, status, progress, and issues. From these, our customer expected our team to identify issues, risks, gaps, weaknesses, pain points, and possible solutions to portfolio-level integration. We also used these forums to gain face-time with government and contractor teams and personnel, build trust and rapport, and establish the interpersonal relationships necessary to perform our portfolio management functions. The **seventh major task** was for our team to plan, organize, and facilitate the government's first Quarterly Planning Review (QPR) meeting for all of the programs to demonstrate their accomplishments in the last quarter with respect to IT modernization. The **eighth major task** was designing, implementing, and facilitating detailed program assessments of their technology stacks, lean-agile and DevOps maturity, testing practices, and overall health and status of their programs. The **ninth major task** was to continue establishing the SAFe practices on our portfolio management team. We hired a SAFe ALM expert, established our second round of lean-agile metrics, updated and expanded use of our SAFe ALM tool, stood up our second SAFe PI planning session, and began applying rigorous SAFe program and team-level practices. Our team participated in our company's annual offsite meeting and injected lean-agile goals and objectives into the corporate strategic plan. From this we, stood up a company SAFe community of practice (CoP) and held our inaugural meeting. We rolled out SAFe PI planning and ALM practices to multiple corporate operational functions, we developed a corporate SAFe consulting practice, and we continued injecting SAFe practices into more government healthcare contract proposals. We also mapped our SAFe practices to traditional practices to comply with our firm's CMMI Level 4 initiative.
- **QUARTER THREE.** The **10th major task** was for our team to plan, organize, and facilitate the government's second Quarterly Planning Review (QPR) meeting for all of the government programs to demonstrate their accomplishments in the last quarter with respect to IT modernization. This also included a greater focus on what value our portfolio management team was adding to the overall IT modernization efforts. We demonstrated the results of our data mart and data model modernization efforts as well as several early live prototypes and results of these efforts. In addition, our team prepared and delivered a SAFe overview to the leadership of our government and contractor teams. The SAFe overview had an immediate impact on both the government and contractor teams, which spurred our new government director to create more roadmaps and our largest programs to begin applying more rigorous lean-agile, SAFe, and DevOps practices. Lean-agile thinking had never been a core tenet of the culture of this government division, portfolio, or contractor community. That was one of the fundamental purposes of our contract, to instill lean-agile thinking into this portfolio's culture. The **11th major task** came from our new customer leader, who directed our team to facilitate the construction of a 90-day roadmap for the entire portfolio. The government held an offsite to create the first version of the roadmap, but it was our team's responsibility to continue fleshing it out, mature and stabilize it, and help the government use it for planning and oversight purposes. The **12th major task** was for our team to get involved in developing a concept paper for integrating the data of all national systems into the federal pillars and data warehouse. We developed a white paper, which fed into our initial roadmap and all subsequent roadmaps. The **13th major task** was for our security control assessment (SCA) team to shepherd the detailed data warehouse design and implementation through the government approval process, which we successfully

did. This included getting the data warehouse approved by the government privacy group, who was responsible for protecting the healthcare data of otherwise silent Americans. There was some perturbation that our data warehouse was placing too much data in one place with access by more people, thus creating a vulnerability. The **14th major task** was for our IV&V team to independently test one of our portfolio's pillar systems, which it successfully did in only a few days. The **15th major task** was for our SAFe coaches to help one of our portfolio's programs with their lean-agile governance, to help mitigate the conflict between the business owners, program management office, and contract supplier. The business owners wanted thousands of untestable business requirements constructed decades ago completed in only a few days, weeks, and months. They did not understand lean-agile thinking principles, MVPs, experimentation, trial-and-error, or buyer-supplier collaboration. The **16th major task** was for our team to continue maturing our SAFe practices, hold our third SAFe PI planning session, promulgate SAFe across our firm, and deepen our SAFe and cloud computing skills.

- **QUARTER FOUR.** The **17th major task** was for our team to participate in an annual national-level government healthcare conference, so we can gain greater insights into the overall issues, problems, risks, and challenges facing our customer. From this, we learned that many of the state-level systems had been modularized and built one function at a time by multiple commercial vendors, with no open state-level data models. The **18th major task** was for our team to plan, organize, and facilitate the government's third Quarterly Planning Review (QPR) meeting for all of the government programs to demonstrate their accomplishments in the last quarter with respect to IT modernization. Our government customer did not want this QPR to be like the prior two QPRs, but, instead, wanted it to be a more interactive unconference-like format with more participation, collaboration, and problem solving. They didn't want program status any more, since they were getting that data from the bi-weekly portfolio management leadership forum our team designed, established, and facilitated. Once again, we turned to our Digital Services (DevOps) consultant to design our third QPR, since he had deep experience in large group facilitation, crowdsourcing, and bottoms-up decision making. In addition to some quick demonstrations of any high-value adding IT solutions by the pillar programs, our Digital Services consultant applied SAFe PI Planning principles to orchestrate this QPR. He used an abbreviated SAFe PI Planning Session to elicit a 30-60-90-day plan consisting of features and dependencies from 125 government and contractor leaders and other key representatives. He also did a similar session to elicit requirements for strategic and tactical metrics for managing the portfolio as well as the state-level systems. He facilitated a DevOps panel to further promulgate modern IT practices among the pillar teams. He also facilitated a very dynamic retrospective to identify what's working well, what's not working well, and how to improve the portfolio's performance. We also utilized an interactive mobile phone texting app to do a 10-minute retrospective on the design of the third QPR. It was our best QPR yet, it mirrored SAFe PI Planning, except at the Large Solution and even Portfolio level, and our new director was pleased. The **19th major task** was for our portfolio management team to capture the data from the third QPR and turn it into an operational roadmap for managing our portfolio over the next 90 days. The **20th major task** was to set up a lean-agile Kanban system for managing the interface between our government customers and portfolio management team. The **21st major task** was to organize our team around the data analytics layer, data warehouse, and four major pillars in order to get more face time with the government's division directors, prioritize their needs, and serve them better. The **22nd major task** was to hold our fourth SAFe PI planning session, which was the best one to-date, as all of our team members felt engaged, including our security engineers and portfolio management leadership team, and begin facilitating SAFe PI planning sessions for the pillar program teams themselves.



Program Analysis

Here is a short synopsis of what worked well, what didn't work well, and how we could have improved over the first year. Combining a highly-motivated team with basic SAFe implementation practices and an incremental adaptive mindset were key. Our team was willing to try SAFe, even if they didn't truly believe in the strategic value of lean-agile thinking. A major success factor was clearly our government agency's top-level executive leadership who was committed to modernizing this agency's IT programs and bringing them into the 21st century as quickly as possible. This is probably one of the only government agencies whose IT contracts contain 100% lean-agile requirements. In fact, we saw a gradual evolution of both the government IT policies as well as contracts in the 12 months of our contract alone. From an IT policy standpoint, we saw the introduction of SAFe into its IT practices, which was not there when we began. From a contract standpoint, we saw SOWs evolve from requiring both traditional and lean-agile practices to the use of lean-agile practices alone. We also saw traditional program managers replaced with lean-agile program managers and the first explicit mention of SAFe in the SOWs. Apart from our government customer's visionary top-level executive leadership, our own executives were also very visionary in uniquely selecting to go all in on applying SAFe to our portfolio management contract in spite of its traditional thinking roots, spare no expense in staffing it with highly-qualified people, and empowering our team to solve our own problems. See the references section for detailed program retrospectives related to this case study.

• **What Worked Well?**

- Young, entrepreneurial IT firm.
- Strong culture of teamwork, collaboration, and crowdsourcing.
- Instinctual, lean, mean, and git-r-done attitude.
- Spared no expense in assembling team of highly-qualified Type A extroverts.
- Fully empowered team to manage the portfolio management contract.
- Deep team experience in technical cloud computing, analytics, and data modeling.
- Portfolio management team collaborated early and often when contract uncertainty was highest.
- Strong SAFe and Agile Lifecycle Management (ALM) tool subject matter experts (SMEs).
- Stood up SAFe Program Increment (PI) planning quickly at program and portfolio levels.
- Quickly added new, highly-experienced personnel to our team, when we needed to solve hard problems.

• **What Didn't Work Well?**

- Customer, company, and team had deeply entrenched high, power-distance authoritarian culture.
- Company favored a traditional thinking mindset with multi-million-dollar CMMI and ISO 9001 initiatives.
- Customer, company, and team overallocated people, strove for full resource utilization, and multitasking.
- Executives attracted to shiny new objects every 90 days like fish in a pond and changed minds frequently.
- Most of the team did not have any prior experience, training, or certification in lean-agile practices.
- Neither customer, company, nor team believed in the strategic value of operational process frameworks.
- Neither customer, company, nor team were deeply vested in lean-agile thinking, values, and principles.
- Customer, company, and team treated lean-agile practices as just another tool in the vast toolbox.
- Team members started favoring sub-optimization and individuality after initial period of uncertainty stabilized.
- Had a multi-cultural, multi-ethnic, and multi-gender team leading to intense conflict, distrust, and dysfunction.

• **What Could Work Better?**

- Customer, company, and team needed stronger buy-in to strategic value of lean-thinking principles.
- Customer, company, and team needed greater investments in leaders with lean-thinking values.
- Customer, company, and team needed greater focus on collaboration, teamwork, and shared responsibility.
- Customer, company, and team needed to shed its love affair with 20th-century traditional thinking principles.
- Customer, company, and team needed to shed its high, power-distance authoritarian culture and values.
- Customer, company, and team needed to shed its practice of overallocation, full-utilization, and multitasking.
- Customer, company, and team needed to establish lean-agile portfolio management Lean-Kanbans.
- Customer needed to instill lean-thinking principles in its business owners and other middle managers.
- Customer needed to create a culture of experimentation using hypothesis testing, MVPs, and trial-and-error.
- Our project needed formal team-building exercises to establish trust, communications, and collaboration.

Summary

In an effort to grow its small to medium-sized business, our rather entrepreneurial firm proactively proposed to apply SAFe 4.5 practices to help modernize a \$200 million portfolio of federal IT healthcare data systems. Our government agency-level leaders strongly promoted the use of contemporary lean-agile practices. However, policy makers, business owners, and middle managers were still deeply entrenched in 20th century business requirements-driven waterfall practices. Division-level IT directors were faced with slim budgets trying to satisfy agency executives and stodgy business owners with basic lean-agile practices such as Scrum. Both the government and contractor communities also had deeply entrenched traditional thinking cultures, stemming from the government's high power-distance buyer-supplier culture and historic support for CMMI, ISO 9001, and PMBoK compliance. Although most contractors were applying basic lean-agile practices, business owners were

simply not budging and would not play along with a paradigm that promoted eating-the-elephant-one-bite-at-a-time. Policy makers and business owners invested millions of dollars in decade old mountains of business requirements and were willing to wait-until-hell-froze-over in order to get all of them at one time, perfectly! Although our firm had a 14-year history with its client, most of our contracts were very narrowly scoped and kept highly-contained within the strict nature of the government's divide-and-conquer high power-distance culture. Therefore, we simply didn't-know-what-we-didn't-know! However, this naivete was sort of a blessing in-disguise so to speak and somewhat compatible with SAFe itself. We saw the words lean-agile portfolio management in a 41-page, 12,000-word SOW and simply inferred SAFe was the right way to go, in sort of a bright-eyed-and-bushy-tailed fashion. The government selected our team, awarded us this contract, and we set out to implement SAFe practices one team and one program at a time, beginning with our own. We spared no expense in staffing highly-qualified and highly-motivated personnel who implemented basic SAFe practices without wavering. Like any good firm, fixed-price government contract with rigid 20th century requirements etched-in-stone, our contract immediately deviated from its scope on day one and morphed in nature every 90-days, which is par for the course. While many other government agencies might select a different, more flexible kind of contract vehicle for lean-agile IT contracts, this government agency insisted on firm, fixed price contracts for everything in order to strictly control costs, scope, and outcomes. We had strong technical leadership from our government side, our firm was a young and entrepreneurial with deep technical experts too, and the overriding goal was to fast track a new federal-level data warehouse in a year, come-hell-or-high-water, a philosophy which both helped and hurt us. On one hand, the government didn't force us or anyone else to use outdated traditional practices from the 20th century. However, they didn't seem to have the training, background, experience, nor belief in lean-agile practices either. That didn't dissuade our team, and true to the SAFe philosophy of "culture change comes last, not first," we selected to standup basic lean-agile SAFe practices from day one. Our portfolio management team successfully implemented four SAFe PI planning sessions in the first year, along with SAFe PI planning at the multi-program portfolio level. All five of our major portfolio level programs including the data warehouse, pillars, and newest financial pillar were emboldened to apply lean-agile thinking by our team and strengthened their commitment to SAFe. SAFe is a set of basic lean-thinking principles for enterprises, portfolios, large solutions, and programs. It supports basic notions of empowerment, collaboration, teamwork, incrementalism, visualization, communication, trust, shared ownership, user experience, and, of course, product and service quality. However, many people demanded to reduce SAFe to step-by-step prescriptive ceremonies, practices, tools, and metrics.

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SAFE CASE STUDY QUESTIONS & ANSWERS (Q&A)

- How the idea of using SAFe was introduced?
 - Lean-Agile methods are growing a lot in the public sector.
 - A small \$4 billion healthcare agency was aggressively adopting lean-agile methods.
 - One of its larger subdivisions was modernizing a small portfolio of about 25-35 legacy systems to support a large national-scale cloud computing data center.
 - It put out a small \$25 million contract for portfolio and program management services requesting hybrid traditional and lean-agile methods.
 - One of its key suppliers of traditional program management services and a cloud computing technology innovator went out on a wing and suggested the use of SAFe for this modernization initiative (in addition to traditional PMO services).
 - In only one year, this agency went from hybrid waterfall-agile contracts, SOWs, and other acquisition instruments to 100% lean-agile contracts—But, it's culture and community were still locked in the stone age.
 - However, its CIO who aggressively pushed lean-agile thinking into its new contracts very quickly got a little ahead of the game (as its middle management and contractor supplier culture were still playing catchup).
 - It wasn't long ago that this agency was all in on traditional instruments like CMMI along with its contract supplier base (which in-part led to the downfall of Healthcare.Gov by a CMMI Level 5 international supplier).
 - Many supplier management systems and cultures are still firmly entrenched in traditional CMMI practices.
- What kind of prep work went into starting the SAFe journey (e.g., backlog prep, training, executive on boarding)?
 - First of all, our firm's leadership had to be innovative enough to separate the wheat from the chaff in the original SOW and insist more upon SAFe than traditional CMMI practices (all the while continuing to push hard for CMMI Level 5 compliance—They secretly wanted the best of both worlds—Run a 50-yard dash with 100 lb. backpack).
 - It had a culture of crowdsourcing proposal development with technological innovators, bringing in some of the top regional SAFe experts in public sector acquisitions (but fell short of institutionalizing these innovations).
 - Then the firm's leadership consistently baked SAFe practices into its strategy and won the contract (the firm's first-ever portfolio management contract and one of the first ever at this government agency).
 - From there the firm recruited multiple top experts in SAFe, Digital Services, DevOps, and Agile Application Lifecycle Management (ALM) tools.
 - It picked a portfolio management staff from some of the best-of-the-best or best of breed, and spared no expense (there was a lot of expensive IT brainpower on that team).
 - There were a lot of Type A extroverts with high-IQs that were willing to run with SAFe, although many had never heard of Lean, Agile, Kanban, DevOps, nor SAFe (creating many short, medium, and long-term adoption risks).
 - Not only that, but they were willing to single-handedly reengineer the entire legacy application base (including 2,500 national systems that plugged into the federal systems).
 - This was a very aggressive team, almost too aggressive at times.
 - The entire team was trained and certified in SAFe, and we hired some of the top hands-on SAFe experts in the state, who stood up our SAFe ALM tool in a matter of days.
 - Executives and middle managers were trained in SAFe, the firm adopted SAFe for managing its portfolio, and hired a SAFe vice president to aggressively push out SAFe on all programs and internal operations.
- What were the major ah ha's you discovered to successfully implementing SAFe?
 - In spite of the fact that lean-agile methods are growing in the public (government) sector, and there are over 300,000 people trained and certified in SAFe, not many people have hands-on experience with SAFe (not many of our teammates did).
 - In only 5 years, SAFe trainees have eclipsed 7 out of 8 PMI certifications and are soon to eclipse PMI's largest base of certified PMPs (and PMI has been around for 50 years).
 - One of the SAFe mantras is, "culture change comes last, not first," in other words, "just-do-it," however, it does take courage to get a small team of people off their butts to take a chance on SAFe (especially for multiple ARTs).
 - Combined with our \$25 million contract, Type A experts, aggressively innovative firm culture, and two or three SAFe zealots, we literally stood up basic lean-agile practices in a matter of weeks and full-SAFe PI planning and Agile-ALM tools within 90 days.
 - So, a major ah ha is to "just-do-it"—Even Kent Beck said Extreme Programming required courage in 1998—The same for SAFe is true, it takes raw courage, which was not in short supply.
 - It takes daily, weekly, monthly, and quarterly process improvement to refine SAFe practices to get them right.
 - I think the biggest surprise was how many left-brained analytical people were in our customer base, firm, and

- SAFe team—Social skills, people skills, interpersonal skills, teamwork, etc. were in desperately short supply.
- People were more than happy to use SAFe processes, tools, metrics, and ceremonies, but were not willing to trust one another very easily and communicate with one another like the Agile Manifesto insists.
 - Good old face-to-face communication was in short supply, even though we were all collocated with open seating—We literally had people screaming at one another over Skype from 5 feet away, but not face-to-face.
 - It took about three licks to get to the center of our tootsie roll tootsie pop, before the whole team intrinsically, intuitively, and instinctively embodied SAFe practices (like magic), even our curmudgeons.
 - The keys are interactions, listening, keeping it simple, teamwork, and continuous improvement between key stakeholders at all levels (vs. elaborate ceremonies, processes, metrics, tools, methods, practices, etc.).
 - Successful lean-agile thinking is not rocket science, there are no physics involved, it's not sexy, and you're going to get a lot of people exacerbated, angry, upset, and start a rebellion if you walk into a room screaming "SAFe is here, SAFe is here, SAFe is here, to save the day!"—Unfortunately, our micromanager was one such town cryer!
 - Successful lean-agile thinking is about teamwork, communications, and soft-skills—All of the things humans are especially bad at. Firms need to invest in these areas. It's just not sexy stuff. People are attracted to sexy things like project management and cloud computing—It's hard to sell investments in soft-skills training—Keeping it simple is just not sexy—Complexity, large teams and budgets, risk, and certain failure are sexy and exhilarating!
 - Our most talented people had the least people skills, were damn proud of it, boasted of their lack of social skills, and could not be talked into softening their stance on the importance of emotional intelligence to lean-agile success—Our executives were 1,000 times worse, and our customers were 10,000 times worse!
 - In the end, you just have to do it, continuously improve, and let it sink into the culture over time (and resist backsliding into traditional thinking in the process)—That is, boldly move into the future with lean-agile thinking without resorting to traditional practices (there are way too many lean-agile backsliders and people who want to save the day with debilitating traditional thinking practices like complex integrated master schedules a mile long).
- Significant challenges and how you overcame those (shiny objects, dealing with conflict, trust, and team dynamics)?
 - There are many technical and non-technical challenges along the way, it's a bold new world in which we live!
 - From a technical standpoint, technologists, and especially executives, have very short attention spans—About 90 days for execs and a few years for technologists.
 - Technologists and executives are easily excited about bold new technological breakthroughs offering to be silver bullets for sleighing the werewolves of becoming better, faster, cheaper, more profitable, more competitive, and successfully managing technological complexity—I guess this is a good thing—Cycle times are shortening!
 - Technologists and executives have never been more open to process technologies than they have in the 21st century, from a portfolio, program, project, team, and individual management point of view—The only problem is they can't agree on which was is best (or, worse yet, want to do them all simultaneously, both good and bad).
 - However, technologists and executives quickly get bored with their latest Christmas toys after a couple of hours, especially softer concepts like portfolio, program, and project management methodologies, or even emotional intelligence, communications, conversations, interactions, and teamwork.
 - In fact, most technologists and executives are horrible at teamwork and are fiercely individualistic, in other words, they're exceptionally terrible at the softer elements of portfolio, program, and project management, which are key to successful lean-agile thinking, or modern scientifically-based lean-agile management thinking at all.
 - I fail to mention middle managers who are curmudgeons to successful anything—Middle managers exist as the dark matter between executives and technologists, who thrive on maintaining the status quo, and succeed by ignoring silver bullets altogether, whether good or bad, and are very bad at the softer disciplines as well.
 - Middle managers are sort of like the ice asteroids sitting in the asteroid belt between the fourth and fifth planets, and all of the debris sitting on the edge of our solar system—One small nudge can send these ice asteroids blazing through the solar system like unstoppable comets waiting to become the next dinosaur killer—One bad middle management apple certainly ruins the whole batch—Can't live with them or can't live without them since they contain so much institutional knowledge—Rogue middle managers can destroy SAFe alignment in seconds.
 - Since technologists can succeed with little institutional knowledge, it's best to eject middle managers when instituting bold new transformation initiatives, which will just bog you down like dead weight—Ours certainly did in spades, who often form shadow project management teams to undermine leaders and SAFe alignment.
 - Many project managers, directors, and executives rise to the top of their institutions for lack of people skills and are experts in hand-to-hand organizational combat—In other words, you can't turn to extroverted executives to mediate organizational conflict, because they thrive on it—The more conflict and debilitating politics, the better.
 - Oftentimes, true leadership comes from the bottom of the hierarchy, these are the people with little power and status who must survive being eaten by the large sharks at the top of the food chain—It's ironic that the best conflict managers often come from the bottom of the hierarchy—Blessed are the peacemakers for they will inherit the Earth—This beatitude could never be more timely in lean-agile teams of the 21st century.
 - Leadership starts with every individual, good lean-agile thinkers and subject matter experts, and those with more

vision than executives who rose and succeeded by thriving on backstabbing politics—In other words, leadership begins with YOU, if your leaders can't or won't lead with emotional intelligence, then it's up to you to lead by example—Remember, power corrupts, but absolute power corrupts absolutely, so you can't always depend on organizational leaders or human resources to lead the emotional intelligence revolution of the 21st century.

- After more than a century of begging both Eastern and Western businesses to focus on emotional intelligence as the source of organizational wealth, we're finally starting to see the payoff of these investments—Today's organizations have never been more kinder and gentler in the history of the world—That being said, we have light years to go, because delicate ecosystems can be shattered by insensitive neurotics, domineering personalities, and even multicultural team members that do not appreciate the fine art of Western emotional intelligence—Some Eastern cultures claim to be based upon emotional intelligence, which is often just an empty philosophical platitude—At some point, one has to practice what one preaches, which is the hard part.
 - People simply do not understand the consequences of the Butterfly Effect, one small rude comment will destroy a relationship, team, and project forever, but one small compliment can resurrect a failing project and relationship—Unfortunately, there are still too many customers, executives, middle managers, project managers, technologists, and teammates that believe the key to management and executive success is mastering the art of rudeness.
 - Commercial, non-military settings are particularly challenging, because of the diversity of people in the workforce, from both an international and gender point of view.
 - Many commercial, non-military projects have such a diversity of personnel, that it's extremely difficult to instill a sense of oneness, teamwork, and camaraderie, especially from Far Eastern nations, which tend to be hyper-cliquish, xenophobic, cohesive, impenetrable, strictly-guarded, and stick very close together—Oftentimes these self-defense mechanisms are meant to protect their members, but end up harming multi-national team unity.
 - This is not to say that mainstream Americans aren't cliquish, because they're just as bad, so multinational teams tend to self-organize into cliques based on nationality (e.g., white Americans, black Americans, Indians, Chinese, Koreans, Muslims, Hindus, Sikhs, etc.)—It's very challenging to form a tightknit team, when instant impenetrable, international barriers quickly amalgamate from hardwired neuro-patterns instilled since birth that are hard to undo.
 - Then there's the great gender divide, as American females are quickly rising up the food chain into political, government, organizational, project, and technical leadership—There's a ton of pent up frustration from the female community that's been bottled up for centuries that's ready to explode like Mount Vesuvius—Watch out!
 - There are also certain African countries where females tend to be fiercely individualistic, whom are ready to step in to take charge, assume a leadership role, and destroy any sense of hierarchy, teamwork, camaraderie, cohesiveness, etc., real or perceived, especially in a Western setting free from gender oppression in their nations—Welcome to the "Land of the Free and the Home of the Brave!"
 - And, of course, there are the same old technical subject matter experts, often white males who with high intelligence, testosterone, confidence, and deep hands-on technological skills—who think they know it all—want to act like the bull in the china shop and destroy any sense of camaraderie to get things their way.
 - All of these factors are a perfect storm that exacerbate debilitating conflict, trust, and team dynamics—This is not to say that good old fashioned male driven hierarchy is good, but that the key to success is no-hierarchy, teamwork, consensus, collaboration, and cooperation—Not a white American male hierarchy, white American female hierarchy, international Far Eastern cliques or operating cells, or African female driven leadership.
 - The worst thing you can do is to just let things happen and emerge naturally—There has to be proactive development and training plans and tactics to mitigate conflict, distrust, and lack of teamwork—You must not tolerate dysfunction or prima donnas that destroy team unity—And, it has to be done tactfully without sweeping condemnation of poor behavior that will destroy team morale by creating an environment of fear.
 - Distrust comes from fear and lack of respect for everyone's contributions—Many international countries have strict caste systems and high-power distance cultures between the rich and the poor peasants, which often get directly injected into American information technology firms—These cultural barriers must be dismantled quickly, tactfully, and with grace—Humans are our greatest treasures—It's time to start taking solid action on this belief.
- **Format of the PI planning sessions and outcomes?**
- Our first PI planning session, call it Iteration Zero, was a little basic—First we analyzed the contract statement of work, spoke with our customer and project director for vision, direction, and guidance, and pulled the team together in a room—Here, I facilitated a live PI#0 planning session where each portfolio management sub-team (10 of them) gathered and told me their features for the next 90 days—We did this during the last quarter of the calendar year (holidays), to keep people moving forward and adding value at our micromanager's insistence—We also did a retrospective to determine what went well, what didn't, and how to improve—Overall, it was very well received, because it was live, there was a lot of interaction, and people were surprised to insight into the work of all of the teams in real time—Many of our teammates came from traditional thinking cultures based on divide and conquer principles, where teams did not have real-time visibility into the entire program—Then we rushed to our company's annual holiday party an hour later, because business always comes first to micromanagers.
 - Our second PI planning session, call it PI#1, was a little different, almost a digression of sorts—We were under pressure to use a SAFe application lifecycle management (ALM) tool in order to capture our work—During PI#0,

we captured the PI on a whiteboard with 100% conversations—But, we hired a SAFe ALM expert, probably the only one in the state and pressured her to get our SAFe work into the ALM tool, so she took that to heart—She instructed everyone to sit around a table for a few hours and type in their features, user stories, tasks, and various other SAFe metrics into the tool—Most of us didn't know what we were doing, except for her, since she was the state's only SAFe tool expert, so it was awkward, painful, and very un-lean-agile like—Much like a funeral service.

- Our third PI planning session, call it PI#2, was a little more by the book, because as the lead SAFe coach, I insisted that we take our fingers off the keyboards and communicate and collaborate more—We set up a PI planning board, communicated a vision and goals, identified features, user stories, and tasks, presented these to the other teams, validated them with leadership, identified our risks, and did our retrospective—We did this over two days—Then, we entered the data into the SAFe ALM tool for tracking—This was a big improvement over our PI#1 funeral like service, and similar to PI#0, but a little more formal by the SAFe book.
- Then, we did a Solution Train Planning session with the leaders and customers of the entire multi-billion dollar portfolio at the customer site, totaling 100-200 people—We brought everyone together, had our customer's director communicate a vision and goals, broke each release train into teams, along with portfolio management SMEs, and identified epics and features—Each team contributed to a combined PI board for the entire portfolio along with dependency strings—From there, we reviewed the combined PI board with our customer leadership team, who validated, improved, and added more features—We did some demos of what had been built in the last quarter, then we did a retrospective with each of the major release trains and had them present the results to the customer leadership team—Then we did a live retrospective, where all 100-200 people typed into their cell phone about what worked well, what didn't, and what could go better, with the responses popping up on a big screen in real time—We did this over two days—People were thrilled, including stubborn customers, suppliers, and technological experts who were skeptical of lean-agile practices and devoid of any management competency.
- Energized by our surprisingly successful solution train planning session with the entire portfolio, our team jumped into our fourth PI planning session, call it PI#3 the very next day—I jumped in early and set up the PI board by myself in about an hour, because doing it late in the day by committee was simply too painful—Our entire portfolio management team showed up and our project director communicated the vision and goals to us—We broke into subgroups and had live hallway conversations vs. formal meetings—Then we came to the PI board and everyone began posting their features and user stories for the next quarter, including traditional curmudgeons who hadn't contributed anything for 9 months—Everyone did this without complaining like SAFe experts—Then we reviewed each team objectives, features, goals, and risks with our leadership team and entered our data into the SAFe tool—We did this in a day, like experts, quickly quelling attempts to micromanage and criticize team performance.

- **Retrospective?**

- It takes courage to standup SAFe PI planning sessions, there are 300,000 people trained and certified in SAFe, but not many people have the influence, power, or courage to standup SAFe PI planning sessions—It takes leadership buy-in and a few subject matter experts to get the ball rolling—Don't expect miracles on the first two or three attempts—It also takes courage to continuously improve—We were fortunate enough to have the luxury of a full-time Agile coach—My job was to politely critique the teams use of lean-agile-SAFe practices and keep them moving forward—At least the teams took action on my suggestions, although I felt powerless much of the time.
- There aren't many people who believe in the power of lean-agile practices (e.g., customers, suppliers, executives, middle managers, project managers, team leads, technologists, etc.)—This continues to be a problem—The challenge is not to build a worldwide kingdom of lean-agile priests on the planet replete with flowing robes and phylacteries—The challenge is to get these as instinctive practices without doing nothing at all or reverting to traditional practices—People have to keep it simple, visual, highly interactive, intuitive, and enjoyable.
- There are a few people who want to marry traditional and lean-agile paradigms (e.g., hybrid traditional/agile practices are popular in both the federal and commercial market places)—Worse yet, there are many people that believe the art of project management is micromanagement, and want to use lean-agile practices such as SAFe to micromanage, control, and tell other people what to do—The key is to disempower the micromanagers and empower the workers to plan and track their own work from the bottom up using lean-agile practices like SAFe.
- More importantly, we need to keep SAFe conversational, social, and interactive, teach people social skills, break down barriers to trust by proactively employing formal team-building exercises through training and certification, get customer and company organizations on board, get everyone to abandon traditional thinking and practices, keep it exciting so people don't get bored, proactively manage conflict without overreacting and firing people, bravely release and sunset people who are counterproductive to success, and train people to mitigate conflict between micromanagers and productive technologists who need time to think, create, contribute, etc.
- **What's the bottom line?** We need more emotional intelligence among customers, executives, middle managers, project managers, team leads, technologists, etc.—This should be human resources' #1 goal—Oftentimes, HR creates the problem by injecting highly-individualistic traditional thinkers into the workplace which disrupt organizational and team culture and ignoring the true sources of organizational dysfunction—Themselves—Perfect teams can rarely be formed by randomly assembling a group from a collection of resumes and interviews—Imperfect teams can be improved through teamwork—It takes effort, they're not random.