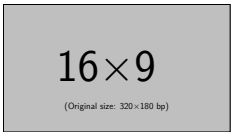

Controls Organization

Bootstrap, Quality

Prototype Document
A convergence of twisty dependencies. 0b-verge-proto-doc

First Last

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Prior: 664e

RACI
Responsible: First Last
Authority: Management, Senior
Contact: Leadership
Inform: Staff

.1 Forward

A personal letter by the author,

Recently, I realized I have some rather specialized familiarity and experience with advanced topics in computer platform engineering, operational system engineering (management process, etc), documentation controls, scientific software requirement management, security, privacy, etc. Realized in the sense that, while developing a procedure cheat sheet for myself, it occurred to me that nobody I know actually understands the precepts required to enable the validity of my notes. I'm not even maintaining a solid implementation, to support the work I was documenting, least of all the documentation of it.

Not intending to publish, I decided it was important for me to somehow flesh out and optimize the big picture, it has been quite a few years since I put together a reference network platform anyway. At a minimum, it would be a good idea to better layout the framework to index and revise my documentation bits, just so I can keep track of it.

With an introduction like that, obviously the goal of a representative composition, with a beginning and an end, quickly extended beyond all of my renewed horizons... So, I decided to represent it as three parts, a documentation template, an example implementation, and the development integration of the first two parts. After getting that sorted out, and separating the important first parts from the unnecessary details, it started looking like a three part book. And, no book makes any sense without a title, and a purpose.

Purpose? This was a real struggle, did I just dip into a fourth part? I was quite apprehensive about expanding the initiative any further, and I landed on writing a preface, and creating a story that ties the purpose altogether with the content. At some point after coming up with a title, and between refining the preface and detailing the process of documenting architectural inputs. I though of you! And, our various commiseration and conundrum discussions around problem solving. :)

That helped me get a first draft preface wrapped up, which includes an anecdote, and touches on bigger rabbit holes such as networked generative AI tools built into fundamental software applications on your computer exposing your most private digital data to the slippery avalanche slope of license agreements and business partners simultaneously including Facebook and Google to add value marketing value of prompt inputs and geolocation—all of which is happening today, and accelerating at an incomprehensible pace.

Anyway, with that. I'll leave you with my preface. A pdf is attached. This book is about bootstrapping a fictions company called *The Controls Organization.* I hope you find it amusing at least.

.2 Preface

A framework for the design of operational controls, incorporating authorization, and iterative optimization, as a structured development process, is not easily phrased, and the implementation is equally complex. Yet, simultaneous framework and operational development, with authorized implementation, maximum value, least time, and lowest cost is fundamental underpinning of nearly every project; regardless of technicality. Many years ago, I learned two valuable lessons from the pharma industry: "If it isn't documented, it didn't happen," and what I will characterize as, "Repeatability is the mother of improvement."

What begins as a system process development template, an initiative I've revisited many times, quickly collides with a dilemma: should I abandon the generic framework with abstract inputs and outputs—applicable to any project—in favor of real-world integration examples? The former is in-

herently inaccessible for education, lacking the elucidation, and verification an example provides, and which is also a great asset for development; while the latter introduces an application barrier, the example data must be filtered out, with every new template application. So, why not both; a process framework, with examples!

The challenge is that framework development and example-populated framework development are separate, yet interdependent, projects. Their integration essentially forms a third project. As details are refined and applied, the time to iterate the development cycles is compounded. Although using examples is the best way to uncover optimization opportunities, populating frameworks with examples becomes a distraction from refining the framework itself.

The simple yet crucial answer is that you *must* provide examples with templates—especially *process templates*—because without input and output examples, process understanding is elusive. Even generative AI struggles with example free abstract process; prompt for a novel application, of multiple preexisting activities or objects, and that results in difficulty—given a solution, generative AI cannot even understand the problem, if it is truly a novel one. If the idea is truly new, the AI system doesn't identify the solution (without first bootstrapping a simulation), even when the prompts specifically converge on the required components to solve the problem, the step of *inventing their application* and *assembling the solution* is illusive, if it hasn't been done before.

Take a moment to prompt AI about the pros-and-cons of coconut oil as a lamp fuel, and heat source. A solution using this fuel has critical barriers, yet comes with significant benefits, all about which generative AI will pontificate, if the solution is provided. Yet, discovery of this optimization is missed by generative AI, presumably because prior support is not represented in the training. (At least at the time of this writing.) Google doesn't fare much better, try getting beyond a paraffin, canola, and olive oil comparisons for lamp fuel; and, the health aspect of using the various oils on your skin. These are popular topics, and comprise the first 50,000 or so, search results, primarily ad revenue inspired blogs about patio tiki torches and the romance inspiring domestic oil lamp. The critical challenge of using coconut oil as a lamp fuel is the burn temperature. It it burns so hot that cotton wicks are quickly vaporized, extinguishing the flame as it descends into the fuel. Glass fiber wicks are no more viable. The heat causes the glass to melt, and form mushroom like structures on the tips, which prevent fuel from wicking up, in a few hours, the flame is out, and the wick is ruined. Half of the solution is to use carbon felt, a material with the consistency of regular felt, and a burn temperature suitable to provide protection from acetylene welding. The relatively nominal challenge of crafting a coconut oil lamp from carbon felt can be a life saver in a winter emergency power-loss situation. It will burn for a long time, and the flame is hot enough to make marketable difference indoors, when it's freezing, and a primary heating system is non-functional. There is another hurdle though, the energy density of coconut oil is so great that it requires a flue, like the tall smokestack of a blast furnace creates convection currents feeding oxygen to the fire, or the way the glass bulb of a hurricane lamp draws oxygen up from the bottom to the flame. Ironically, hurricane glass bulbs are sold as decorative candle accessories, and possibly as flame safety, or breeze protection; yet they don't come with holes in the bottom to foster a healthy flame and reduce the soot produced by an oxygen starved candle flame. I digress. While generative AI may pontificate the pros-and-cons, recapitulate data sheets, detail physical properties, support the accuracy and viability of a carbon felt coconut oil lamp; go ahead, try and prompt for it. Describe the goal and barriers; but without actually describing and characterizing the solution components and details of their assembly; as if you didn't know those details. Identifying the components and their assembly is illusive to generative AI. Even prompting specifically for a solution that enables coconut oil as a fuel in a lamp, doesn't get any useful results. The generative AI tool doesn't understand why the flame goes out! I'll give a reward of some sort to

the first person who can show me prompts that lead a commodity AI chat platform to identify how the components of a coconut oil lamp solve the problem, without actually describing the bulb or wick solutions. Bonus points for identifying coconut oil as a alternative fuel, without actually offering it as an alternative. As for the health aspects, I've given up searching for answers, but it stands to reason that coconut oil is at least better than any other option.

Generative AI demonstrates *what we call understanding,* but describing *understanding* is as illusive as *defining intelligence.* That's a foundational theme, which will will be reoccurring in this book. Only after a novel solution is provided (or ironically, after we are presented with a solution that is new to us), then the explanation becomes straightforward. While generative AI may expand on every aspect of, how, or why a solution works, in great detail, it lacks the originality, the capacity of authenticity required to truly invent something. Much like the juvenile "know-it-all" personality exhibits an amazing degree of knowledge, yet with little understanding of application, an inability to innovate, and probably acute symptoms of the Dunning-Kruger effect.

This book is not about generative AI as much as it is about the importance of observations, and controls, for the improvement of process and outcome.

The difficulty of discussing process generically, without specific application examples, led to the creation of a place marker for a guidance document called "Governance, Risk, and Compliance Sourcebook," and eventually the subtitle that better describes this work, *"A Controlled Operating Documents Approach."* The document was intended to catalog various tools of operational control, for later development, as needed, so focus could remain on developing the operation at hand, which inspired the most recent framework initiative effort.

So, where are we? Is the next step documentation of an operations framework, or the framework application to document my pet project implementation? As it happens, it turns out my new project would be *both!* Fortunately, for anyone reading this far, that means the guidance won't simply be a GRC template sourcebook, but an actual book, outlining the sequential roll out of foundational documents, their authorization, and development, for a fictitious organization, called *The Controls Organization.* An initial document, or three, will define documents themselves, their cataloging, and authorization; subsequent details will develop other aspects of process, quality, compliance, controls, and improvement. Because, of course, no framework would be complete without an accompanying example demonstration!

The pet project is the implementation of PKGSRC under a hybrid of Quality frameworks, including NIST RMF, Multi-Vee, Iceburg, DevOps, GxP, and DevSecOps. In practice, there are significant challenges maintaining *Platform, OS,* and *Software Qualification* controls, through *revision* and *release cycles*. I will attempt to develop the guidance to address a *Network Validation*, and resolve those challenges, in the most generic, and optimal way possible!

If you are interested in that sort of thing, and especially as it applies to development of controlled compute platforms for scientific applications, read on! And, if you know a thing or two, please reach out, this is a work in progress, and I would love to expand the list of co-authors and collaborators!

Very Respectfully,
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