Public Sector Procurement Consideration

Is Software a Thing You Buy, or a Competency You Grow?

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Every Company IS a Software Company

One of the maxims of the age is that every company is a software company;[1] alternatively stated as software is eating the world.[2] It's our assertion that this statement is also increasingly true in government. Fundamental to this "software company" paradigm is that software moves from being a thing/widget to be procured to an organizational competency, capability, and capacity to be grown.

Twenty years ago, the "build vs. buy" software dynamic was skewed very much in favor of the "buy" option. Building software was difficult, expensive, and fraught with risk. With the purchase came acceptance that only some portion of the client's desired functionality was likely to be included in the software's delivered feature set. Clients were faced with the choice of either accepting the constraints of the packaged functionality or performing extensive workarounds, configuration changes, or expensive custom software enhancements to address requirements. Despite these compromises, projects were still routinely late and over budget. Challenges didn't end after initial implementation. With subsequent product releases, upgrades and enhancements were complicated by the number of customizations required to continue to meet the initial functional requirements.

If software was built, it was largely outsourced to "low-cost" providers. Software development was viewed as a commodity area, so low-cost arbitrage seemed to make sense as a strategy. Most software was built using proprietary, closed source code, resulting in expensive and time-consuming customization and ongoing maintenance.

The last 20 years have seen the inversion of this dynamic. Today, every company and government agency is a software company—or needs to become one. A well-known private sector/Silicon Valley CEO has gone so far as to say the mantra today is actually "Build or Die."[3]

Software Agility

This inversion has taken place for two reasons. Firstly, consumer and constituent expectations cannot be met without digital service delivery (i.e., without software). Consequently, business and government leaders cannot meet their goals and objectives without reliable delivery of new and continually enhanced digital services. Software delivery has transitioned from a cost center to be minimized to an institutional capability and value stream to be maximized.

Secondly, building software has become relatively easier, given a number of key macrotrends, including the rise of open-source software, the evolution of cloud and open architectures, and the mainstreaming of agile software development methodologies. Broadly, let's characterize these trends as an overall increase in software agility. As a result, in-housing software development capability is increasingly common.

Although there are still large and complex software systems bought rather than built (ERP system, anyone? Bueller?), there is a tremendous demand for differentiating functionality to satisfy specific consumer needs or citizenry expectations. Need to get a better hold of voting patterns and participation? Create a custom mobile app. Do students need better access to school information and a simpler registration process? Ditto.

Unfortunately, many public sector organizations have not yet made this transition and are still buying what they should perhaps be building or renting (as SaaS). Why is that? Software agility is full lifecycle and encompasses both the procurement of the services and component software, as well as the building, managing, and running of the actual software. Many government entities have adopted—or are in the process of adopting—agile, open source, and cloud-based frameworks. Some have even addressed rewiring procurement processes "wired" with a "waterfall mindset." Yet, whether built or bought, the inculcated public sector procurement and software development process is often a deterministic, one-pass, serial model of defining requirements, and designing, building, testing, accrediting, fielding, and sustaining IT and software systems. Among federal IT projects valued over $10M following this waterfall process, 94 percent end up over cost, over schedule, or don't meet users' needs; 40 percent are cancelled outright before any capability is fielded.[4] Worse yet, studies show that fewer than one-third of fielded legacy capabilities delivered in the waterfall fashion are useful, from a business value or mission

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[1] *https://www.satellitetoday.com/innovation/2019/02/26/microsoft-ceo-every-company-is-now-a-software-company/*

[2] *https://www.wsj.com/articles/SB10001424053111903480904576512250915629460*

[3] *https://medium.com/silicon-allee/build-or-die-twilio-ceo-jeff-lawson-on-embodying-the-silicon-valley-software-spirit-in-berlin-ff93d5d33a53*

[4] 4http://www.computerworld.com/article/2486426/healthcare-it/healthcare-gov-website--didn-t-have-a-chance-in-hell-.html

outcome perspective,[5] and with 75 percent of IT resources going to sustaining[6] those nearly worthless baselines, there are scant resources left for innovation and delivering better software outcomes.

Despite broad recognition of a need for change and a willingness to learn and adopt modern practices like agile software development, DevSecOps, Cloud and agile procurement practices, most public sector organizations have not yet made the transition to becoming "software companies." Many cite valid market constraints—to be an organic software company, you need to hire specifically skilled resources like software developers, and private sector competition may preclude or complicate public sector abilities to recruit, compensate at market rates, and retain this talent. In our experience, multiple federal governmental entities have been able to overcome this challenge; for State, Local and Educational (SLED), the constraints may constitute more of a challenge and create opportunity for creative and differentiating approaches to establish digital talent pipelines. One example is the opportunity for public-private collaboration where government sponsors academia to build "free" certification or degree programs for under-served communities that lead to public service in government 'digital services. This is a very current conversation, whose outcomes are uncertain and ongoing.

Faced with these known constraints, SLED leaders can hardly be blamed for taking the perceived safe course in terms of digital service procurement and delivery. In the same way that a generation (or two) ago, nobody would be fired for procuring a large blue North American brand, the current default is to procure COTS/GOTS as finished things/widgets to be maintained.

Defensible 20 years ago as both the default and the path of least resistance, our considered opinion is that this strategy is increasingly outdated, for the reasons cited in this article. Acquiring the organizational capability to continuously deliver software that actually meets or exceeds specific and evolving citizen needs is a reasonable aspiration, and one that should be realistically explored before repeating the GOTS procurement motion of 10 years ago. In the best case, the SLED entity is becoming a software company and is actively involved in the custom build. In the next best case, the customer would provide domain knowledge and product-centric involvement in a custom software build. In the third case, the necessary software could be rented (SaaS), partially or fully. Our belief, and our experience, is that repeat procurements of COTS/GOTS packages will get SLED customers the same suboptimal results that they achieved in the previous iteration—it's time for new thinking.

Software Delivery as a Competency

For public sector IT and software leaders who want to achieve better outcomes for their stakeholders and constituents, the answer is that the whole is greater than the sum of the parts, and the "whole" must be addressed. To make the transition, leaders must champion cultural, business practice, and technology change. VMware has delivered on large-scale public and private sector partnerships with innovators, driving workforce enablement and better software outcomes by advising and mentoring champions of change while helping their enterprises learn and scale the business, art, and science of building, running, managing, and protecting software in the cloud. And with great success. According to internally developed metrics and analyst studies by IDC,[7] we've helped customers achieve an average 32 percent increase in developer productivity; 59 percent reduction in IT infrastructure spend; 69 percent reduction in overall IT infrastructure admin and ops staffing; 46 percent faster cloud migration with 59 percent less migration staff time and 57 percent lower cost; and 82 percent more software shipped to production. Along with speed of delivery came enhanced quality and uptime, and in many cases, significantly improved mission/business outcomes that reduced legacy workflows by 80+ percent and saved hundreds of millions of dollars![8]

VMware Tanzu Labs – Enabling A New Way of Work

Our VMware Tanzu Labs approach to enabling customers to achieve better IT and software outcomes can be viewed through the lenses of people, process, and technology. We provide an innovative and immersive proving ground for adapting organizational design, workforce skills and competencies, culture, and processes while building, delivering, and scaling game-changing software on an open-standard, hyperscaler-agnostic, cloud-based development and IT operations technology ecosystem. Our one-on-one enablement model partners with every level of the customer's organization, upskills organic and supporting contractor workforces, and drives hyper focus on business outcomes with the know-how to achieve them. Customers learn how to continuously deliver software using various architecture and technology approaches like

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[5] Lean Enterprise, Jez Humble, pg 32 & 179-180; study based on Microsoft partner architect Ronny Kohavi's work

[6] https://puppet.com/resources/report/2017-state-devops-report/

[7] https://www.vmware.com/content/dam/learn/en/amer/fy21/pdf/691726_2020_Business_Value_Running_Applications_VMware_Cloud_A WS_VMware_Hybrid_Cloud_Environments.pdf

[8] https://www.linkedin.com/posts/kesselrun_team-digital-future-activity-6750041100788097024-q-WS

microservices, APIs, CI/CD, DevSecOps, hybrid and multi-cloud, Kubernetes-based container orchestration, event stream and distributed data mesh data architectures, and Zero Trust-enabling cyber security implementations.

Enablement starts by meeting the customer where they are and propelling them into a new gear with competencies including lean product management, user-centered design, agile software development, cybersecurity engineering and operations, and data science and operations. We have the experience and benefits of hard-fought lessons learned from co-founders of public sector innovation successes like the Air Force's Kessel Run, Space Force's Kobayashi Maru, Joint Special Operations Command, and Army Software Factory, to name a few. We can also advise to help align government procurement and acquisition processes consistent with the values, objectives, and technical skills of modern software practices. In short, to achieve the "software company" outcome of building the institutional capability and capacity to deliver software, VMware Tanzu Labs is the public sector's enablement proven partner of choice.