

SOFTWARE FACTORY

BY SOLDIERS. FOR SOLDIERS.

DECISION DOMINANCE FOR THE FUTURE OPERATING ENVIRONMENT



“Fighting and winning on the next battlefield will depend on DoD's proficiency to rapidly and securely deliver resilient software capabilities”

—DEPUTY SECRETARY OF DEFENSE KATHLEEN HICKS

“We realized as we went through Project Convergence, we need Soldiers that could go out in the field to code at the edge...”

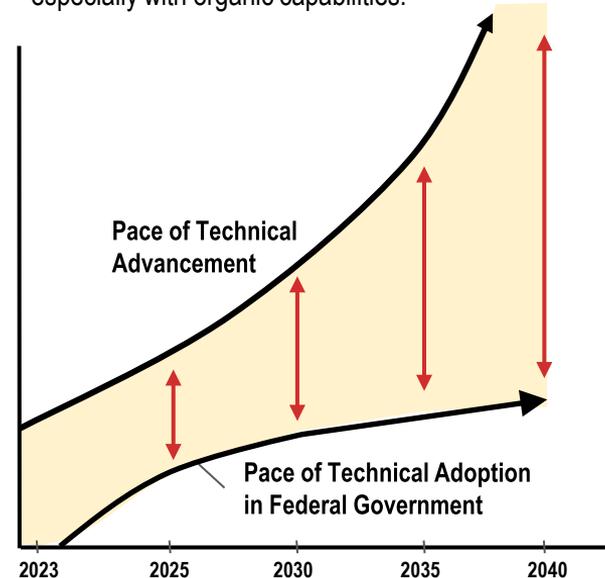
—CHIEF OF STAFF OF THE ARMY GEN JAMES MCCONVILLE

- Preparing for a future operating environment of **disconnected, highly lethal & highly-technical** battlespaces that are **ambiguous, fast-paced and data/software-driven**
- Scaling software operations to **the last tactical mile**
- Providing mission **agility for commanders** without reliance on contracted support to legacy systems
- Leveraging Cloud as an Operating Model
- Serving as **technical advisors** to Army units and organizations
- Piloting **now** readies the Army for proficiency and success in 5-10 years



Must Act Now - The Tech Gap Will Continue to Grow

- The pace of technical innovation/capability is advancing rapidly, doubling roughly every 2 years.
- The Army is already behind in adopting technology, especially with organic capabilities.



FROM RIFLE TO KEYBOARD: THE SOLDIER JOURNEY



Build | Measure | Learn: Continuous Improvement with each Cohort

TEAM AGILE FRAMEWORK, STRUCTURE, AND ROLES



Product Team

(Solving an Army Problem and Building Software)



X 1

Product Manager

Responsible for the team's overall performance and execution of AGILE principles. Coordinates with all external stakeholders. Prioritizes feature development. Oversees problem scoping and day-to-day operations.



X 1

Product Designer (UI/UX - Soldier Centered Design)

Responsible for fusing user needs with technical requirements in a way that optimizes user adoption. This includes the User Interface, functionality, and "look and feel" of the application. Beholden to the user group.



X 2-4

Software Development Engineer

Responsible for the front and server-side technical development of the application. Requires proficiency in modern object-based coding languages (i.e. Java, JavaScript, C++, CSS, HTML...etc)



X 1-2

Data Scientist or Data Engineer (AI2C-CMU Program Supported)

Responsible for integrating discrete data sets and sources. Connects to enterprise data platforms. Manipulates large scale data sets for the benefit of gathering insights for the user.

Optional – Problem set dependent

Platform Team

(Provides Platform Support to Product Teams)



X 1

Platform Product Manager

Responsible for platform team's overall performance and execution of platform design, ops and maintenance. Onboards and facilitates app teams' experience.



x 6

Platform Engineer

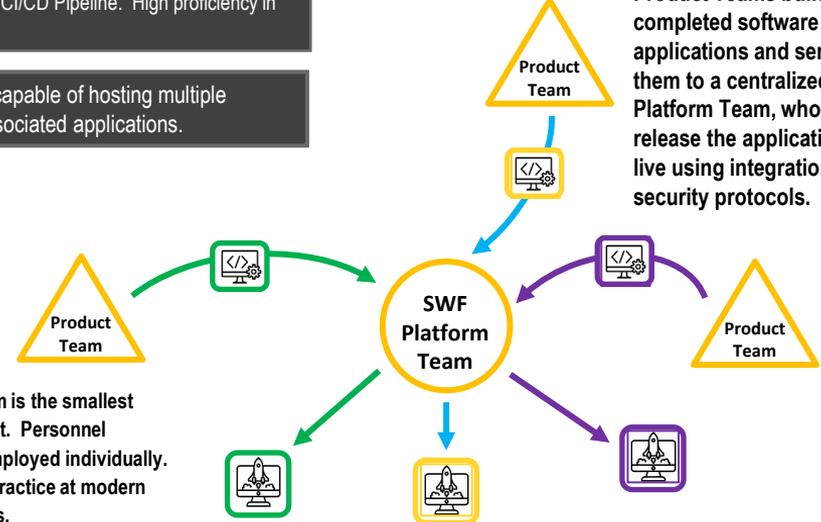
Highly technical. Responsible for integrating cloud-based services and platform reliability. Builds and Operates the CI/CD Pipeline. High proficiency in Linux.

A single platform team is capable of hosting multiple product teams and the associated applications.

Agile Extreme Programming (XP)

- Disciplined Framework
- Paired Programming
- Faster Training of Soldiers 1:1
- Better / More Secure Code
- High-Quality / Faster Outcomes
- 6-12 mos to MVP

Product Teams build completed software applications and send them to a centralized Platform Team, who release the application live using integration and security protocols.



A Product Team is the smallest employable unit. Personnel CANNOT be employed individually. This is a best practice at modern tech companies.

AN EXPERIMENTAL SKILLS-BASED ASSESSMENT MODEL



Concept: Metrics-driven, quickly documented and revised learning is specialized approach to quickly and effectively maximizing Soldier tech talent. Required technical skills and attributes are constantly changing and the program quickly iterates to meet those requirements. Soldier enablement centers around the following Enablement Philosophy:

“Enablement focuses on removing any roadblocks that hinder success. While some institutional learning models seek to force knowledge in, we believe that enablement draws it out.”

TRAINED AS A TEAM

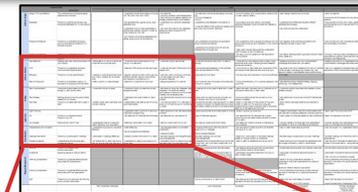
- **Interoperable / Interchangeable** Team Roles for Soldiers
- **Diversity Ensures Flexible / Adaptable** Teams to New Technologies
- **Different from Crew Certification** - No need to recertify for each personnel change

Enablement Battle Rhythm:

Weekly	Monthly	Quarterly	Semi-Annual
<ul style="list-style-type: none"> - SDU Enablement Sync - Enablement Skills Time (4 hrs) - Individual Skills Matrix Review - Leadership Decision Sync 	<ul style="list-style-type: none"> - Practice Lead 1-on-1 - Learning Office Sync - External Learning Opportunities - Volunteer Events 	<ul style="list-style-type: none"> - Soldier Quarterly Assessments - ASI Assessments (Board) - Quarterly Training Changes - Quarterly Metrics Report 	<ul style="list-style-type: none"> - Upskill Boards (Skill Lvl 5-7) - Skills Matrix Review (CTSSB) - Quarterly Training Changes - Quarterly Metrics Report

Skills Based Upskilling for Rapid Iteration

- **Evidence Based** - Metrics for all programs and skills
- **Outcomes Driven** - Modify training to improve Quality
- **Train to Changing Tech and Practices**
- **Experiment with Non-Standard Models** (Private/Academic)



Capabilities		Description			
		1	2	3	4
Software Delivery	New Behavior	I participate in my pair or mob as we implement a simple user story.	I implement the simplest behavior (e.g. CRUD) in a user story.	I implement typical user stories.	I implement almost any story from my team's backlog.
	NFR	The ability to understand and apply Non-Functional Requirements	I describe NFRs and give a few examples.	I implement and test NFRs as part of my regular work.	I provide actionable feedback to the business of the cost/benefit of NFRs.
	Efficiency	The ability to write code efficiently.	I operate my core development tools (e.g. IntelliJ, Gradle, Git) at a basic level.	I regularly use some IntelliJ shortcuts (e.g. Rename, Extract Method, Option-Enter) and frequently build/test/commit.	I use many IntelliJ shortcuts, write new Live Templates, and use IntelliJ navigation features.
	Path to Production	The ability to consistently deploy my application to production environments	I safely publish my code changes	I describe my pipeline at a high level.	I debug/troubleshoot my pipeline.
Testing	Test implementation	Implementing automated unit tests through UI user journey methods	I implement simple unit tests.	I implement typical unit tests and simple acceptance tests.	I test behavior using the "cheapest" tests necessary. For example, testing permutations of behavior with a unit test instead of an acceptance test.
	Test Strategy	Defining and evolving the types of tests needed for our product.	I create & enter useful test data while manually testing.	I understand the types of tests my team uses.	I can describe the pros/cons of our types of tests.
	Test Data	The ability to create data that is used in tests	I create & enter useful test data while manually testing.	I minimize duplication in my test data in order to minimize the cost of maintaining my tests.	I notice when our tests could be improved, but always know how to improve them.
Agile/Lean	Lean Thinking		I understand what "cycle time" is and how it applies to programming.	I defer decisions to the "last responsible moment".	I notice opportunities to eliminate waste to improve my team's cycle time.
	XP	The ability to practice eXtreme Programming (XP)	I can describe XP Practices and Principles.	I can describe why we practice XP.	I use XP Practices regularly.
	Our process	Practicing the "AS/IF" Way"	I understand what our rituals are (Team Stand-up, IPM, and Retro)	I effectively participate in our rituals.	I lead our rituals when it's my turn.
Team Member	Interpersonal communication		I understand how and why we share feedback	I listen effectively.	I use language carefully to be better understood.
	Meetings/Facilitation	The ability to participate in meetings	I participate in meetings effectively.	I deliver straightforward feedback.	I practice empathy.
	Process Diligence	Understanding and following team process and norms.	I am aware that my team has norms, they will evolve over time, and why it is important for me to follow them.	I understand my team's norms and try to follow them.	I consistently follow my team's norms and can teach them to a new teammate.

Delivering Value Faster with Repeatable Processes and Reusable Code

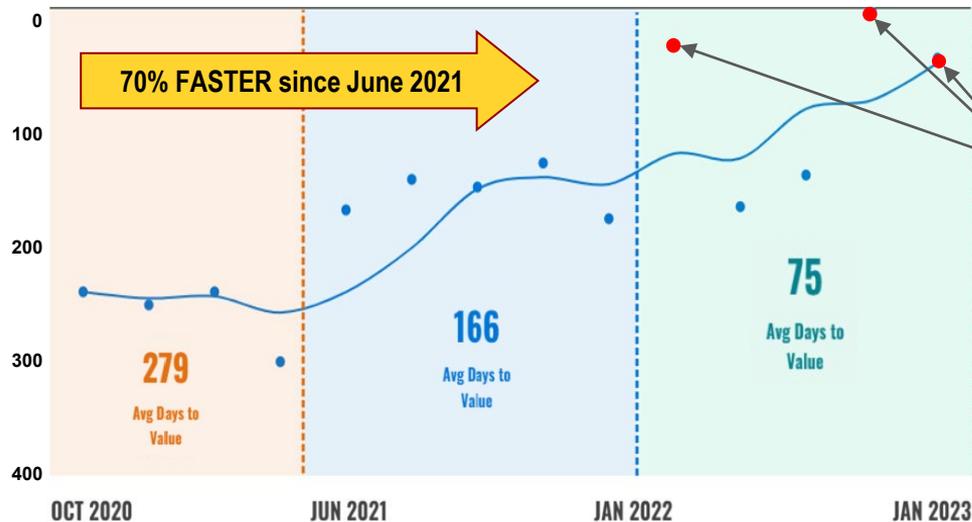
Starter Application (*Tesseract*):

- Tesseract is a starter application that accelerates time to MVP for product teams by reusing code from previous applications. It provides libraries of pre-approved application-specific features, allowing teams to incorporate best practices and **security** into their apps while **reducing** time to production by more than **2 months**.

Path to Production (*SRCerer*):

- SRCerer has enabled **175 Army organizations** to get their apps into the cloud. SRCerer uses a Continuous Risk Mitigation Framework to gain Authority to Operate (ATO) approval in **weeks instead of months or years**. It is a repeatable path that incorporates all STIGS, DISA protocols, and security into Apps.

Days to Value



Pivot and Surge Operations

Battlefield is ambiguous, commanders need the ability to pivot teams on and off projects as the mission demands. SWF measures “Agility” as time to pivot to a new project after safely pausing a current product.

Pivot Projects demonstrate ASWF ability to move in between projects at Commander’s order & deliver apps in WEEKS



PARTS TRACER: ASWF Soldiers in USAEUR pivoted from expected mission and identified a bottleneck, then rapidly delivered app to front line Soldiers to accelerate delivery of mission critical parts to international partners.



ATLAS: First **only mil** dev team. Partnered with USAREUR-AF to improve NATO logistics visibility, predictability, and interoperability by developing CPCE plugin within **35 days**.

ARMY SOFTWARE FACTORY GLOBAL INITIATIVES



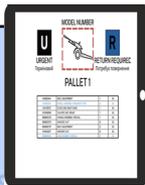
The Army Software Factory is engaged in developing technical solutions for units across the globe and in conflict

Strategic Partner Equipment Support: ASWF supports 405th AFSBn to improve the velocity and efficiency of part shipment with an application in **30 days**

NATO Dispersed G2: ASWF Provides rapid mission command infrastructure to multiple partners and Allies over TAK. Reusable code released to 500K users across USG.

AFRICOM NEO: ASWF support to XVIII ABC and 82ND ABN rapid mobilization to AFRICOM resulting in the Exodus application in **5 days**

INDOPACOM Support: ASWF working to support 18th MEDCOM field hospital capacity and utilization planning (in progress)



FORGING VALUABLE PARTNERSHIPS WITH INDUSTRY & ACADEMIA



ASWF VALIDATES ARMY SENIOR LEADER CHOICE OF AUSTIN FOR AFC

- Clear path for Soldiers to receive bachelor's and master's degrees **at no cost**
- Dozens of industry-led professional development sessions (Top 3, Fortune 500)
- Agreement with several major companies for 60-day immersion tours
- Public-private agreement with community college for access to resources
- Partnership Intermediary Agreement with national security focused non-profit



UNDERSECRETARY OF THE ARMY RYAN MCCARTHY
COMMENTS TO REPORTERS
JULY 2018

"[Austin] gives our leaders placement and access to talent, ideas, collaboration and willingness to help us **build the culture** we need... We do not have time to build this ecosystem; it **needs to be ready immediately.**"

UNPRECEDENTED PARTNERSHIPS WITH ACADEMIA AND INDUSTRY



Univ of Texas offers Soldiers full scholarships for executive master's degrees in STEM



Austin Community College plans to offer 30 hours of college credit for completing ASWF enablement



CROWDSTRIKE



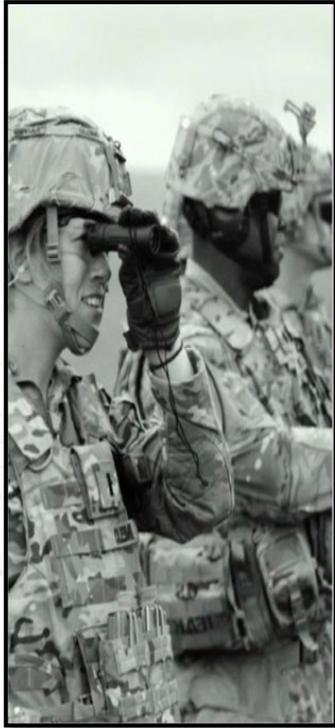
NVIDIA



ASWF working with four major companies to upskill Soldiers through immersive 60-day software development experiences



A VISION TO BUILD THE FUTURE TOGETHER...



On a future battlefield...

...a young company commander looks back to 2018 and thanks the Army's leadership for having the courage to reorganize the Army and stand up Army Futures Command because she/he was just part of the last battle of a short, sharp, successful joint campaign against a near-peer nation state.

And the thing that young company commander is most thankful for is that he/she had the tools necessary to dominate in the unforgiving crucible of ground combat and bring every last Soldier home to the families that trust us with the lives of their sons and daughters.

