In this info sheet, we will go over the very high-level concept of the Army Software Factory and its goals, and then go into more detail about the program itself. Please use this to supplement information found in the AFC Emerging Technical Opportunities Catalog.

Overview:

The Defense Innovation Board defines a software factory as a capability that includes "a set of software tools that programmers use to write their code, confirm it meets style and other requirements, collaborate with other members of the programming team, and automatically build, test, and document their progress. This allows teams of programmers to do iterative development with frequent feedback from users."

The Army Software Factory is part of Army Futures Command and is developing a first-of-its-kind integrated software development initiative to teach, develop and employ self-sustaining talent from all ranks within the military and civilian workforce. The first cohort began in January 2021 with future cohorts starting every six months comprised of approximately 25 Soldiers and 5 DA Civilians. Our team is housed in the Austin Community College Rio Grande Campus in downtown Austin, TX. We are establishing an environment that is more conducive to building modern software solutions – this includes wearing civilian clothes and building a flat organization, where everyone is on a first-name basis and skill can eclipse rank. Above all, our motto is "By Soldiers, For Soldiers."

From a strategic standpoint, this effort is important because Soldiers on future battlefields will likely fight in contested communications environments and will not be able to rely on technical assistance or "reach back" capabilities under those conditions, despite Army plans to field increasingly complex systems over the next decade.

Our mission is to prototype a future force design while up-skilling the Army's technical competencies and to simultaneously serve as a case study to modernize Army-wide legacy IT processes IOT enable dominance on the battlefield of the future. There are three enduring objectives of this effort:

- Increase digital proficiencies across the Force, enabling Soldiers to dominate an information-centric battlefield.

- Solve current Army problems by leveraging agile, DevSecOps cyber security practices and cloud technology.

- Harness the innovative spirit of the country through the close collaboration with the tech industry and academia.

The end state is to provide the Army with a scalable organic capability that enables Soldiers and Civilians to scope and develop software with maximum autonomy at the edges of the battlefield without undue reliance on contracted support while forging positive change across a series of legacy processes.

Implementation:

From a more tactical view, the Army Software Factory has two guiding principles adopted from industry best practices – agile methodology and Soldier-centered design. When we say Soldier-centered design, we mean designing for the end user. This is where we really understand and develop empathy for the pain points of the end user and design a solution that addresses those pain points directly. This involves feedback from users early and often as prototypes are iterated and tested. At the end of the day, this gets back to living by our motto of "By Soldiers, For Soldiers."
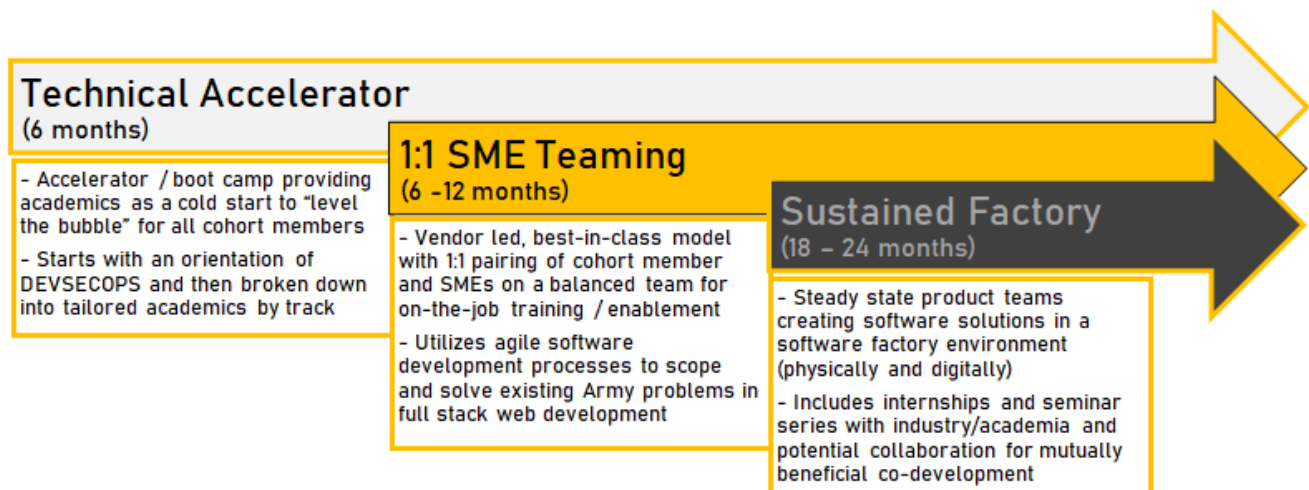
As a general rule, the majority of anyone's time at the Software Factory in Austin will be spent solving operational Army problems with software solutions. On a more tactical level, the Army Software Factory program is broken into three basic phases with four technical tracks.

The first phase consists of an industry technical accelerator tailored to the individual's track. This is designed to baseline everyone to have a common understanding of their respective tracks.

The second phase has several aspects to it. At the beginning of the phase, cohort members are broken out into software development teams and assigned an Army problem. They also begin their pairing with an industry expert. The industry expert is there to coach and mentor each cohort member but also to work alongside the team as a contributing member. The software development team begins to scope the problem and design solutions, working in sprints. This will likely include TDYs to meet with the end users and gather feedback throughout the process. All cohort members have up to 18 months to complete the first and second phases. At the end of the second phase individuals will obtain an ASI, and 'graduate' to become a core member of the software factory, indicating they are a self-sustaining member of a software development team .

This leads to the third phase, where the cohort member continues working on a software development team working on Army problems. Some personnel will also transition to being SMEs for enablement of incoming cohorts. This is also the phase where individuals begin to payback their ADSO for the first and second phases of training and enablement.

At the conclusion of the 36 months in Austin, the intent is for cohort members to continue working on Army problems in direct support of another Army command. We are still developing this future trajectory; but as we gain more fidelity, we will update our information.

Technical Accelerator
(6 months)

- Accelerator / boot camp providing academics as a cold start to "level the bubble" for all cohort members
- Starts with an orientation of DEVSECOPS and then broken down into tailored academics by track

1:1 SME Teaming
(6 -12 months)

- Vendor led, best-in-class model with 1:1 pairing of cohort member and SMEs on a balanced team for on-the-job training / enablement
- Utilizes agile software development processes to scope and solve existing Army problems in full stack web development

Sustained Factory
(18 – 24 months)

- Steady state product teams creating software solutions in a software factory environment (physically and digitally)
- Includes internships and seminar series with industry/academia and potential collaboration for mutually beneficial co-development

<u>Tracks:</u>

    Product Manager – Product Managers are charged with balancing user needs, organizational outcomes, and technical feasibility in order to build value quickly while still considering the big picture. Our teams are flat and balanced, with Developers, Designers, and Product Managers working in concert, empowered to build the software we know our soldiers need. As product manager you will write user stories to describe new features Designers have identified through user interviews, oversee the product's backlog, and validate what the Developers have delivered. You work to keep the team unblocked and de-risked using hypothesis-driven development.

    User Experience / User Interface Designer – UX/UI Designers ensure application teams are building products that meet user needs. Sometimes referred to as an "Empathizer in Chief", UX/UI Designers act as the main conduit to the user. Designers cover a wide variety of skills to be successful including user research, experience and interaction design, as well as visual design. By practicing Soldier Centered Design (SCD), designers act as an intelligent filter for user feedback and ensure that their teams tackle the highest user priorities. As a part of a Balanced Team with Product Managers and Engineers, designers work collaboratively with their teammates to determine design priorities, refine a backlog and roadmap, and validate the technical complexity of their designs.

    Software Engineer –Software Engineers design, develop and deploy apps with a focus on high availability, low latency and scalability. Software Engineers implement user stories from the backlog and write tests before they write production code. Testing first gives engineers confidence and ensure software is free of bugs or security vulnerabilities. Since engineers work with a balanced-team approach, they provide inputs on complexity and architecture decisions to the product team members. Software Engineers also practice eXtreme Programming (XP), in which pairs of engineers work together on the same line of code to share context and knowledge transfer.

    Platform Engineer – Platform Engineers play a major role in developing, managing, configuring, and securing platforms on which all applications rely. They automate the installation, configuration and maintenance of services on the Army Software Factory platform. Platform Engineers manage system-level performance tuning to optimize for reliability and efficiency and guide software releases and activations for new features and platform configuration. You will ensure all applications that are deployed are secure, reliable, and resilient.

The following links are to interviews conducted with someone in each of the roles from the pilot project:
Product Manager: https://web.microsoftstream.com/video/334a1383-346a-4019-b8e5-e738199629cd
UI/UX Designer:https://web.microsoftstream.com/video/4c0086ce-5bf5-4275-b9f0-3edc4376735b
Software Engineer: https://web.microsoftstream.com/video/e4156126-7d05-464c-93db-6b1b5326506a
Platform Engineer: https://web.microsoftstream.com/video/87f43df4-28cd-4b81-9f3e-7417f0a5197a