

Agile Estimation with Simple Function Points

Overview and Initial Observations

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DHS Experience with Agile Estimation

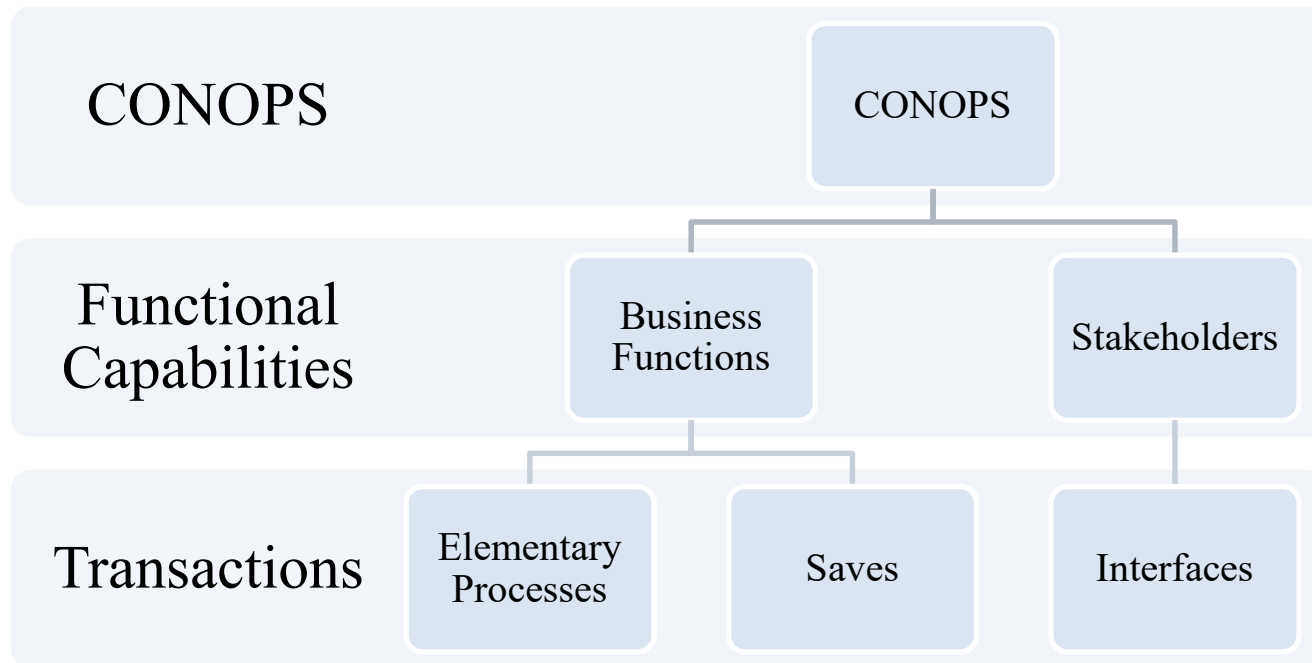
In February 2016 the DHS Under Secretary for Management expressed a need of both Components and HQ Directorates to drive organizational change and process improvement to DHS IT Acquisitions and Delivery

The DHS cost analysis and program management communities were handed two challenges

Estimate agile software development programs early and measure progress towards meeting requirements

Estimating Agile Development Efforts

Simplified Function Point Analysis (SFPA) Methodology – Functional Size



SFPA estimates the Functional Size of Programs from their CONOPS

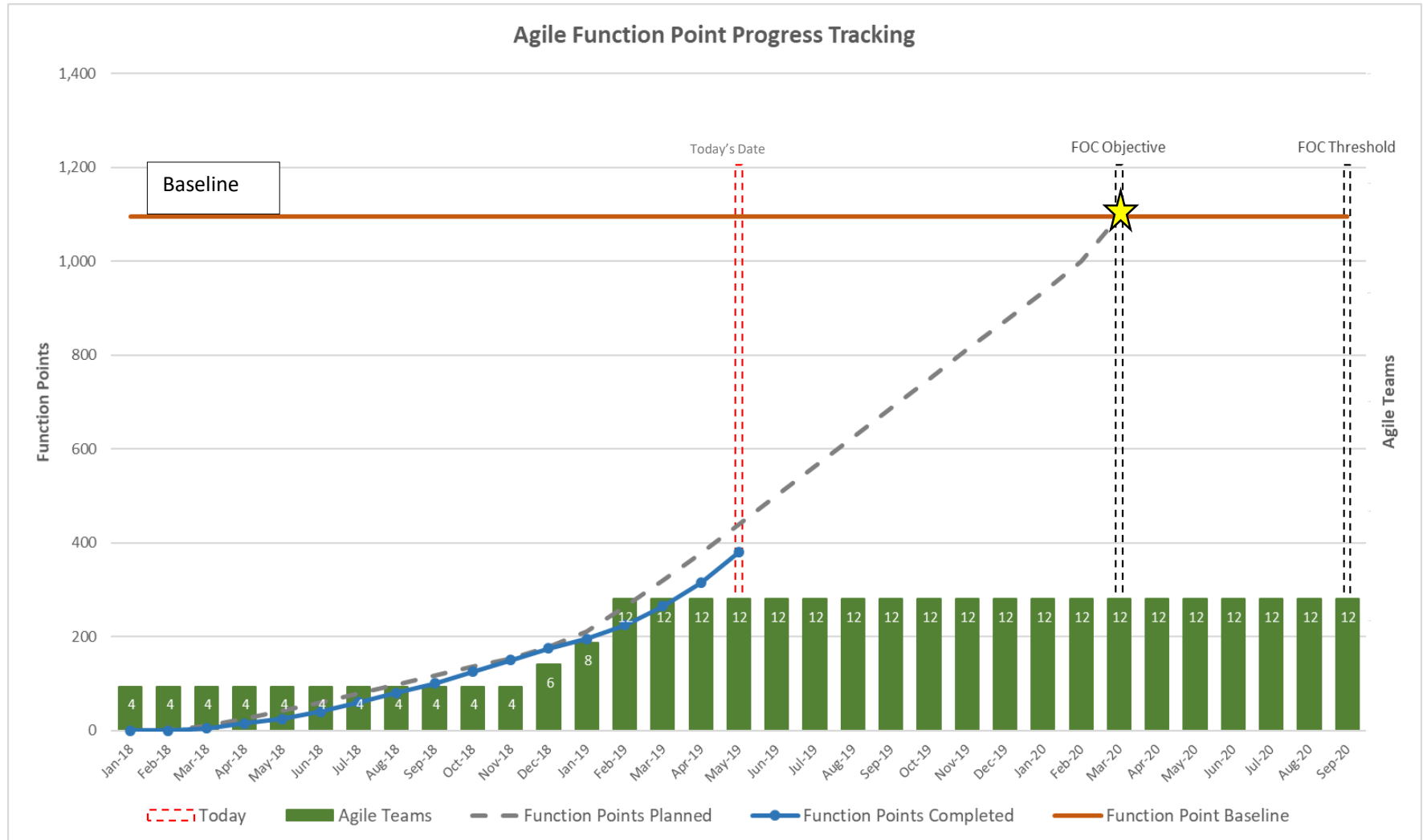


Measuring Progress Towards Meeting Requirements

Goals for Tracking Progress of Agile Programs

1. Demonstrate that the Program is completing something
 - Could be communicated in completed story points, user stories, function points, etc.
2. Demonstrate that the Program is completing what they said they would do, as communicated in an acquisition document (such as the CONOPS)
 - Program must show traceability between their completed work (typically in JIRA) to an acquisition document
3. Demonstrate that the Program is making progress towards completion (achieving FOC) of the Program
 - Need to estimate the number of completed function points so that we can compare it to the baseline
4. Effectively project the Program's estimate at complete and schedule at complete
 - Need to know key programmatic information like number and composition of agile development teams

Software Development Progress Tracking



**Estimated progress needs to be validated via CIO/CTO
Technical Assessment for delivered capability**

Observations on the Use of Simplified Function Points

- **The estimated Function Points at complete is not a perfect value, but an estimate**
 - This top line may change over time as requirements are further refined / changed
 - The completed function points are also estimates, so just because a program completes all necessary function points doesn't necessarily mean that the program has achieved FOC, however it should be a close approximation
- **The estimated planned throughput will change from team to team, and from program to program**
 - More senior teams may be able to “out produce” less senior teams, which should be accounted for in the planned estimate line
 - Throughputs from one program to another will be different due to non-functional work, so a direct comparison is not yet advisable
- **Refinements in sizing and throughput can be assessed via the capture and analysis of data**

Based on observations DHS issued policy requiring the use of Simplified Function Points to estimate and track software development efforts

Origins of JASI

Joint Agile Software Innovation (JASI) Cost IPT

After last year's IT CAST, representatives from DHS/NGA/NSA discussed forming an IPT to share best practices and lessons learned.

The first kick-off meeting for JASI was held on October 3, 2018.

Goal: Improve the US Government Cost Community's ability to estimate the cost of software development in an Agile environment and track progress to successful completion through collaboration and exchange of terminology, definition, data, techniques, and methods.

What We Do

Develop a pragmatic/defendable approach to estimate and measure the cost of software development – Simplified Function Point Analysis (SFPA)

- Deliver SFPA training to the Cost Community as requested
- Standardize and expand the lexicon of verbs for the Pattern Matching Technique used in SFPA

Improve data availability to enhance the credibility of cost estimates and measurement

- Identify data and analysis for inter-agency sharing and use
- Explore machine learning/natural language processing for mining data and sizing software programs

Investigate new approaches to tracking, measuring, and reporting progress of an Agile Program through its development lifecycle

Who is part of JASI?



And Growing!

How Can You Join?

We are always looking for new members to join JASI CIPT!

Requirements:

- Government-only, or Support Contractor with Client permission & part of current scope of work
- Involved in Software Cost Estimating
- Willing to attend meetings quarterly and be active members

Our next meeting will be in September/early October!

Email JASI Secretary: Katharine.Mann@hq.dhs.gov