

Achieving Predictability with Agile

a case study


Agile Israel 2012

27-June-2012

What made us start?

Elbit Systems

Aerospace

- 
- ▶ Projects milestones are not meet
 - ▶ Budget overrun
 - ▶ Integration Hell
 - ▶ Product quality
 - ▶ Management awareness

The Project – A/C Upgrade



Before...

Elbit Systems

Aerospace



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AIRLINERS.NET

...and after

Elbit Systems

Aerospace



Think A Head

System of Systems

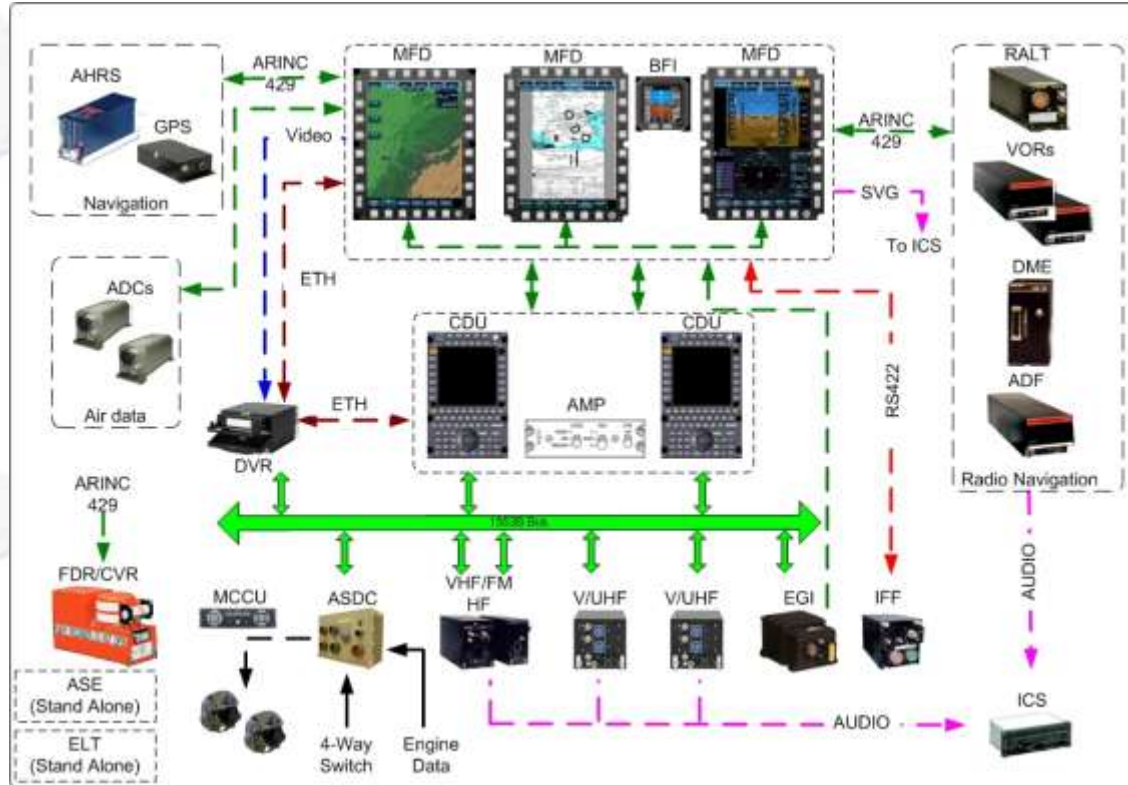
Lots of interfaces

Multidisciplinary:

Pilots

System

Software



▶ Working Software

▶ Predictability

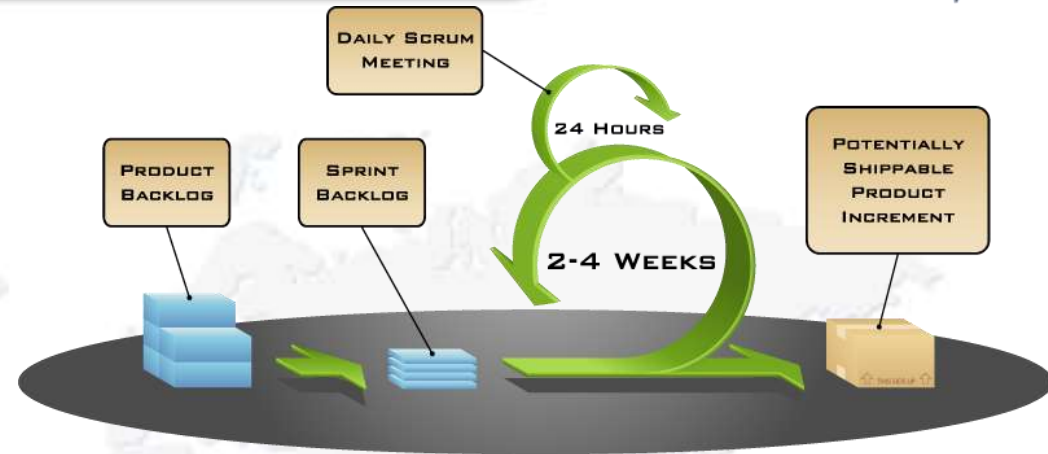
▶ Definition Of Done (DoD) for each US

▶ Done is Done – no bugs

▶ Team Commitment – as many US per PO priority

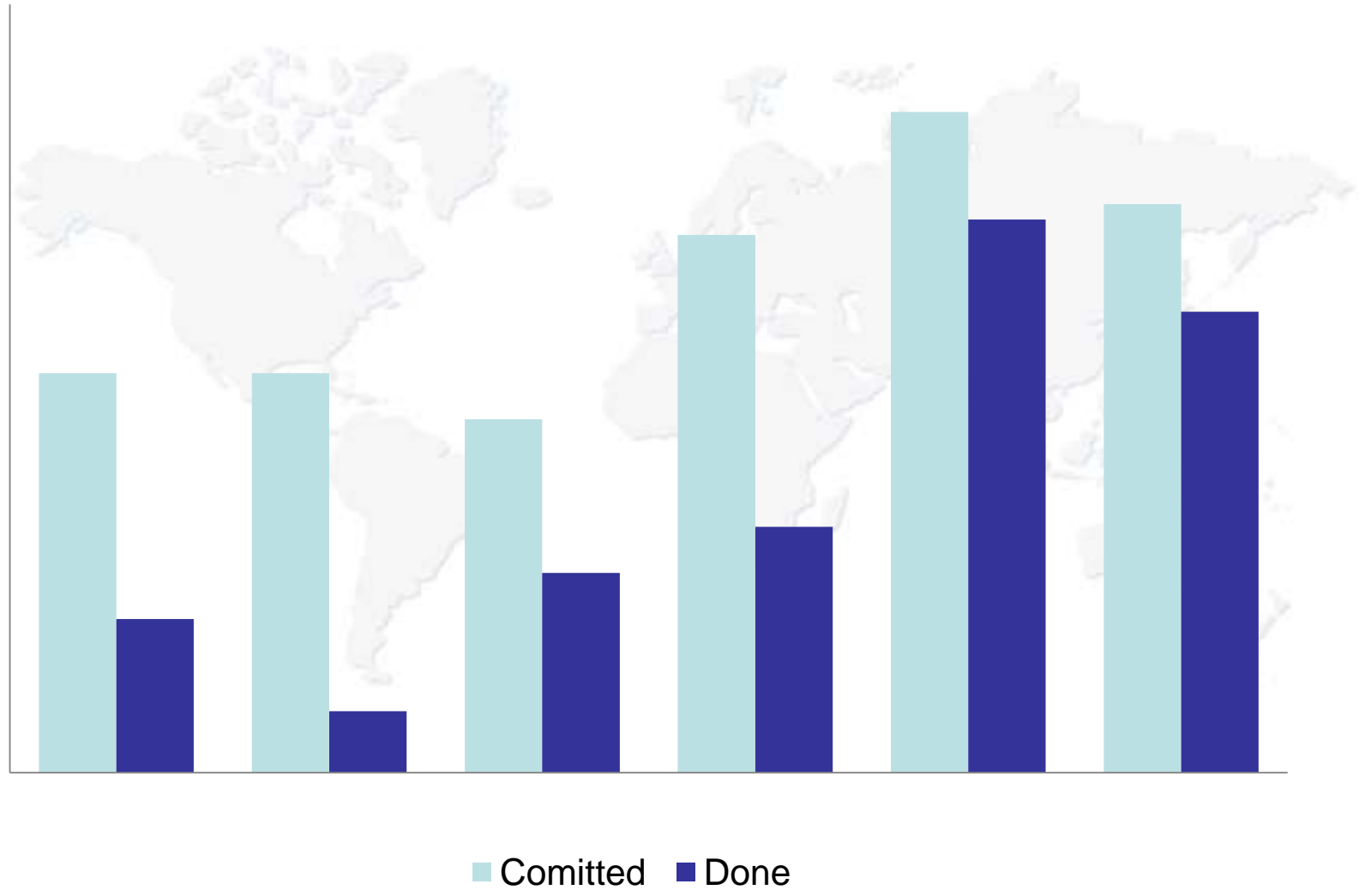
▶ Early Feedback

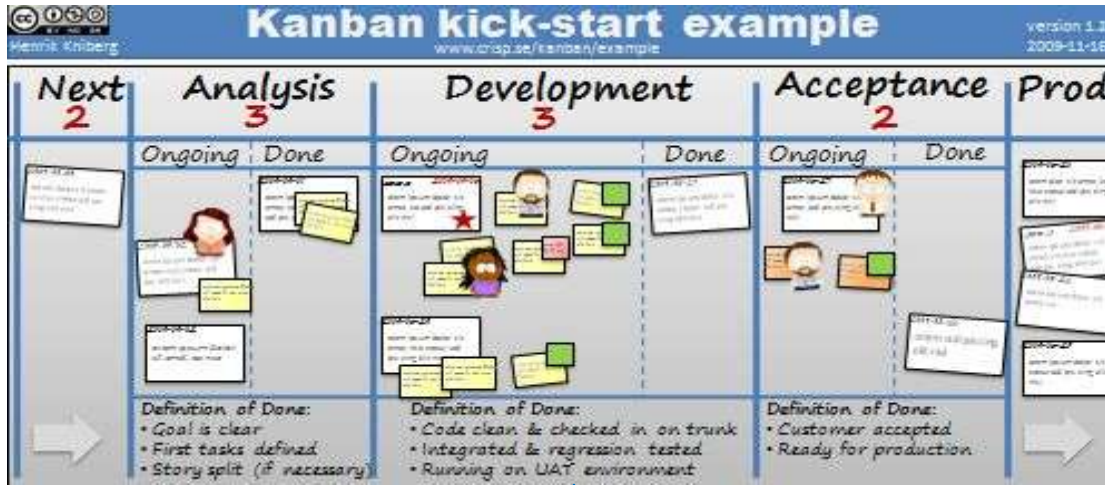
▶ Measure the team, not the individual developer



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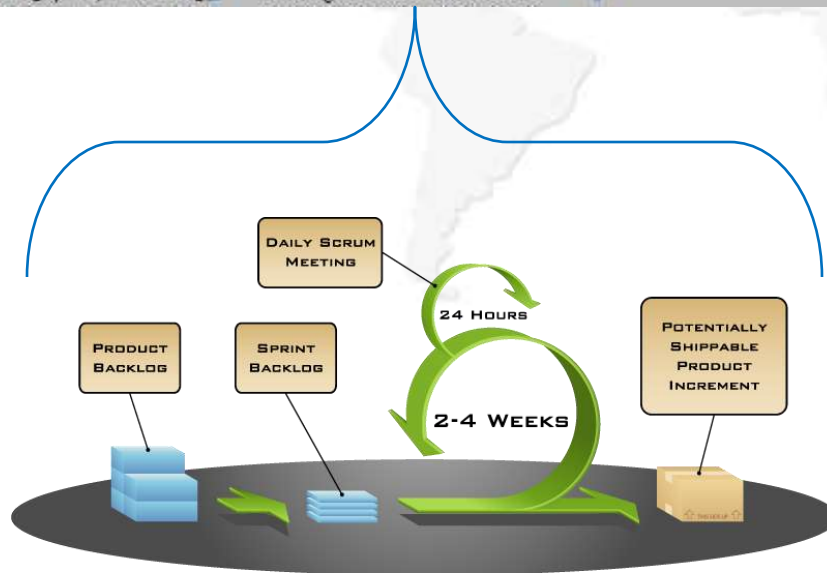
SCRUM Team Measurements





Discovery Team

- Manages the end-to-end flow (using Kanban)



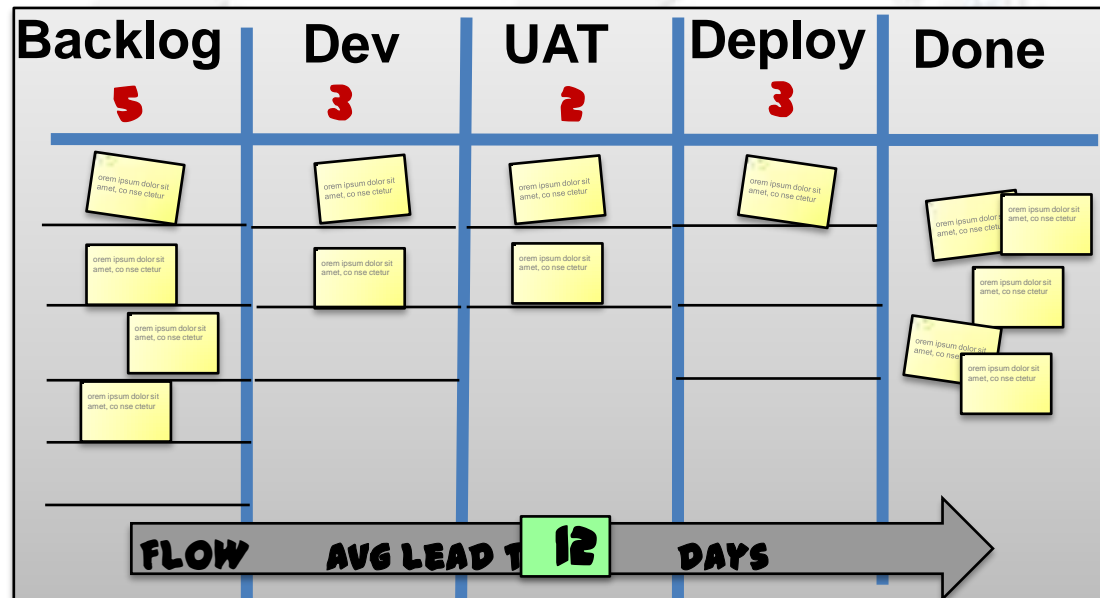
Scrum Team

- Manages the development per iteration

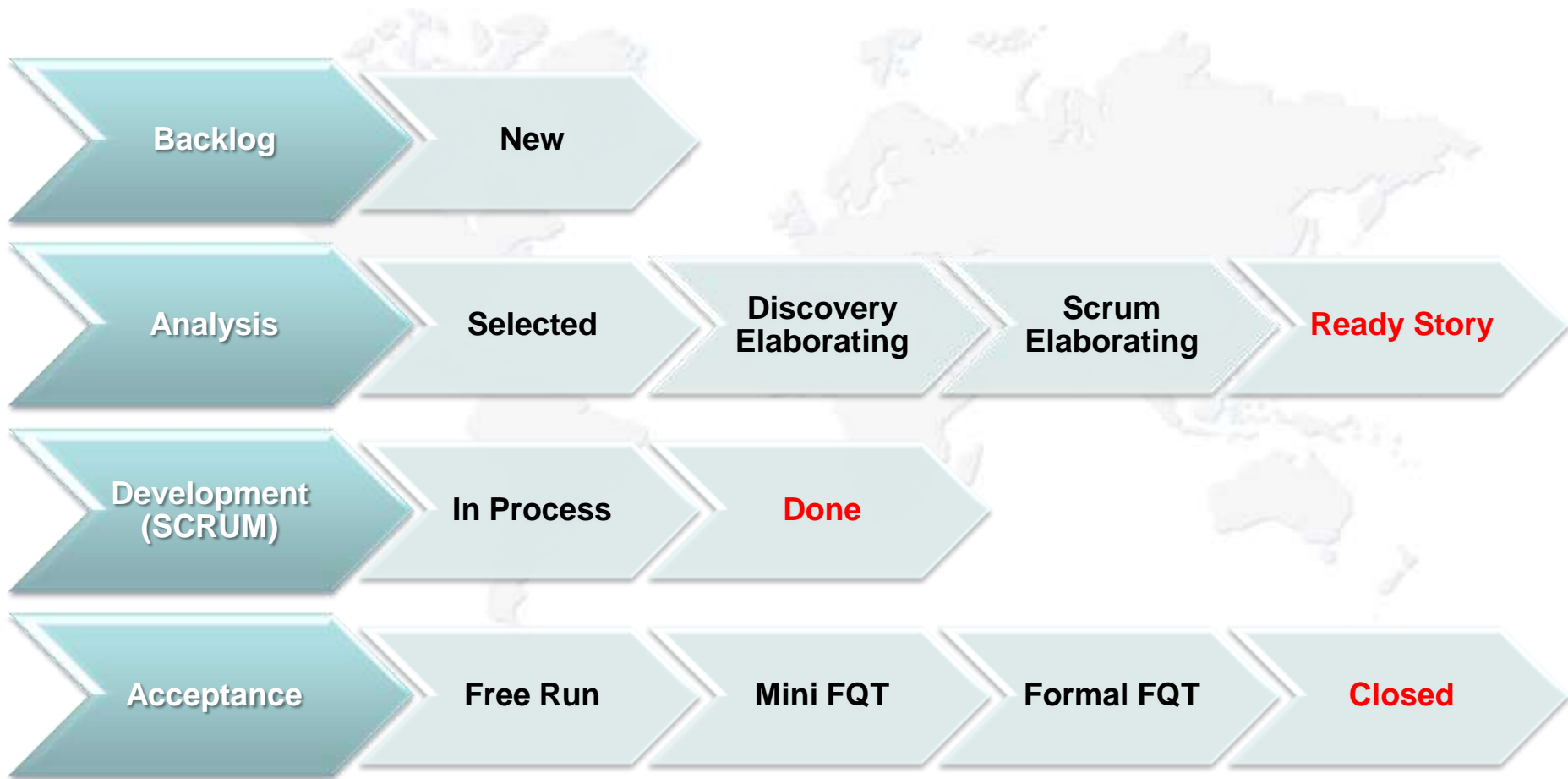
- ▶ **Visualize the workflow**
- ▶ **Limit WIP** (work in progress)
- ▶ **Measure & optimize flow**
- ▶ **Explicit policies** (definition of Done, WIP limits, etc)



Pioneered by
David
Anderson
in 2004



End to End Flow – The States



▲ Who is in the team

- ▬ Technical Manager
- ▬ Operational
- ▬ System
- ▬ Software

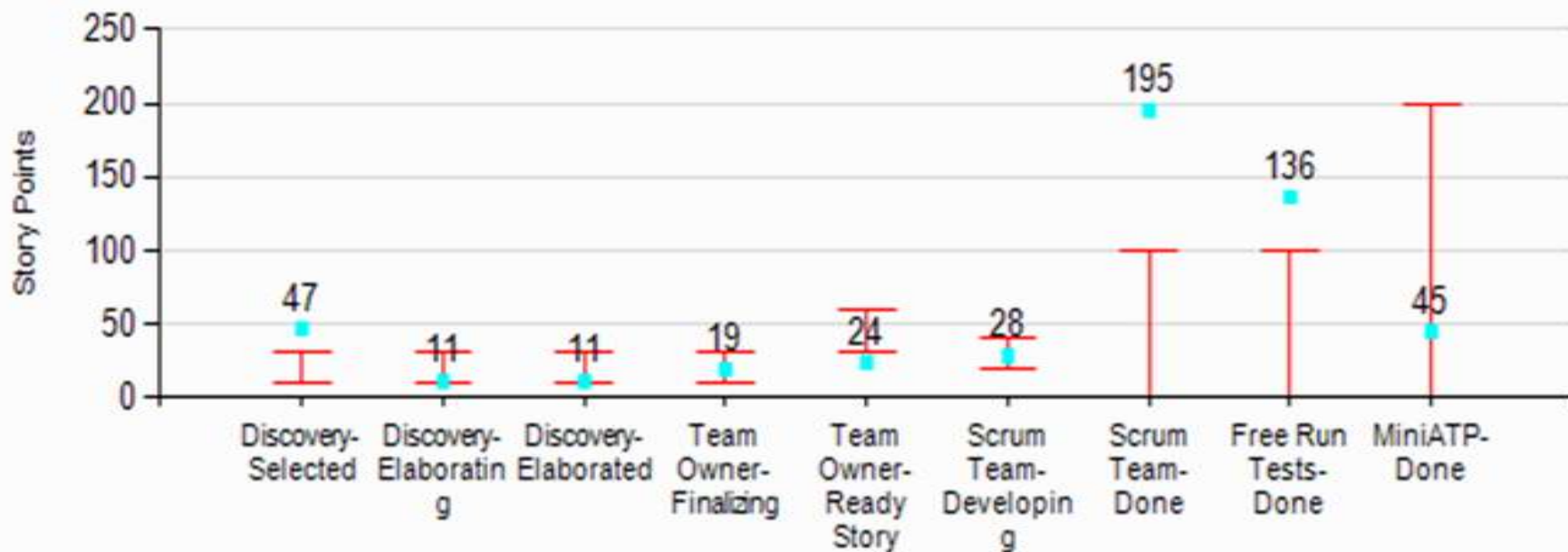
▲ Discovery Forum

- ▬ Once a week
- ▬ Review WIP

▲ Visibility tools

- ▬ SCRUM Team – board & notes – Tasks
- ▬ Discovery – TFS – User Stories

Story Points Per State



Analysis

Acceptance

Discovery Team - Tools

Task Board [Save] [Save and Refresh] [Refresh] [Move to Tab]

Showing all Epic, Task, User Story work items returned by the query **Default Task Board Query** | Legend | Expand All | Collapse All | Group By: {Parent Work Item}

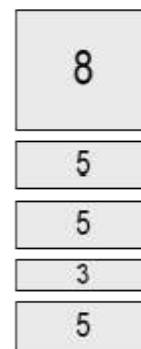
Search Title and Description: [Clear]

Parent	New	Discovery-Selected	Discovery-Elaborating	Discovery-Elaborated	Team Owner-Finalizing	Team Owner-Ready Story	Scrum Team-Developing
Epic #38497: HF device handling (New)							
(38497) HF device handling Ari Gil	(38502) HF Selcal Gilboa Ido 2		(38499) HF fault handling Gilboa Ido 2			(38504) HF emergency and maritime modes Wainshtein Constantin 2	(38498) HF device management CDU Wainshtein Constantin 2
	(42516) HF - handshake with HF Berkovich Yulia						(38500) HF Preset mode setting Wainshtein Constantin 1
	(43581) HF CBIT and IBIT Gilboa Ido 2						(38503) HF preset setting Mor Asaf 1
Epic #38505: HMD device handling (New)							
(38505) HMD device handling Ari Gil							
Epic #38509: IFF device handling (New)							
(38509) IFF device handling Ari Gil	(38515) IFF EMER / IDENT Ari Gil				(42575) IFF IBIT Shalomov Rachel 2	(38511) IFF fault handling Shalomov Rachel 2	

- ▲ Rough estimate (range)
- ▲ Estimates may be wrong
- ▲ Team Velocity is per Backlog estimates
- ▲ Team estimates (Scrum planning) are not related to Backlog estimates (Backlog preparation)
- ▲ Velocity : Done is Done

Min [days]	Max [days]	Story Point	Tshirt Size
			XS
			S
			M
			L
			XL
			XXL
			XXXL

Beginning of sprint

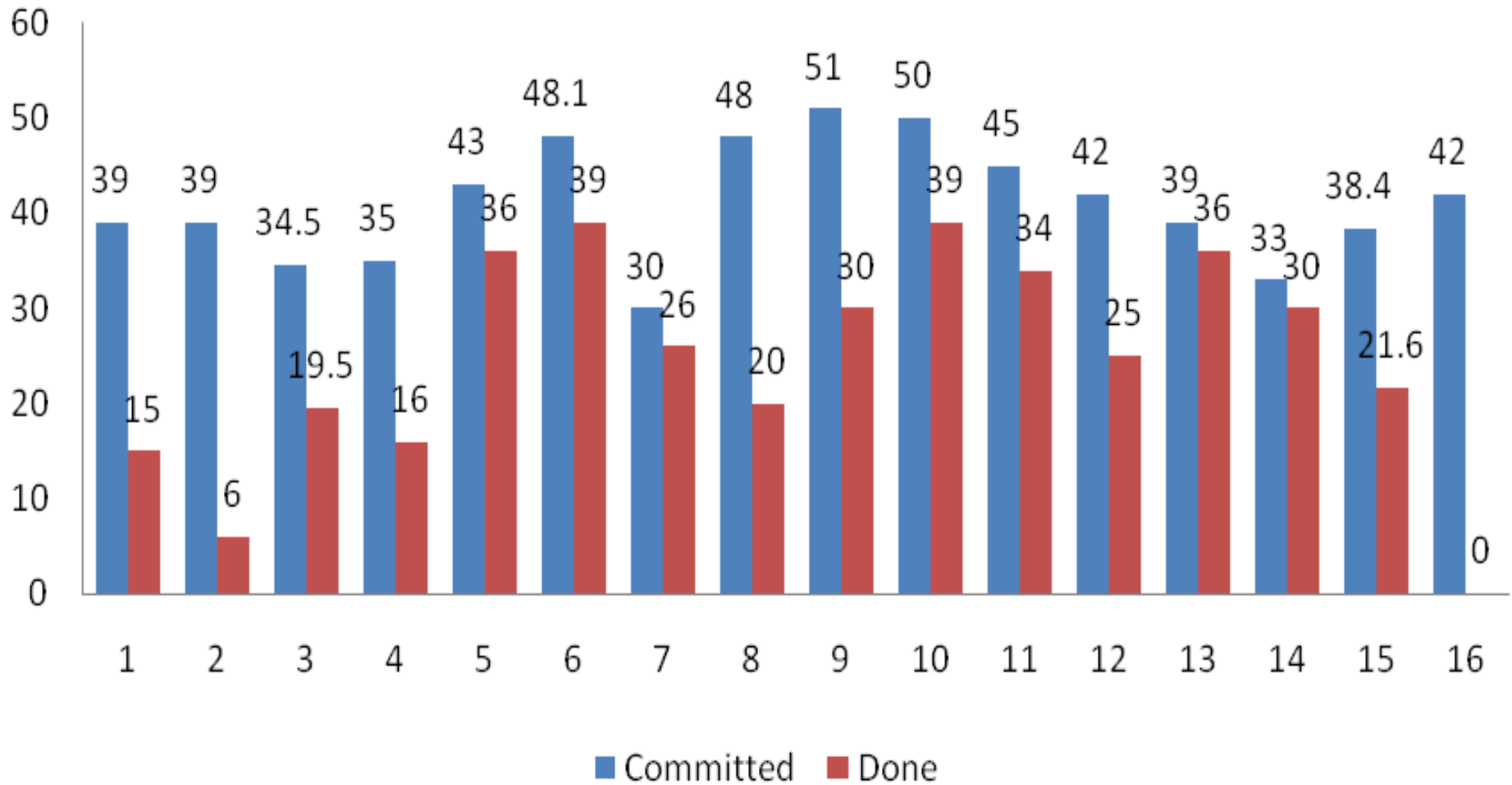


Estimated velocity = 26

End of sprint

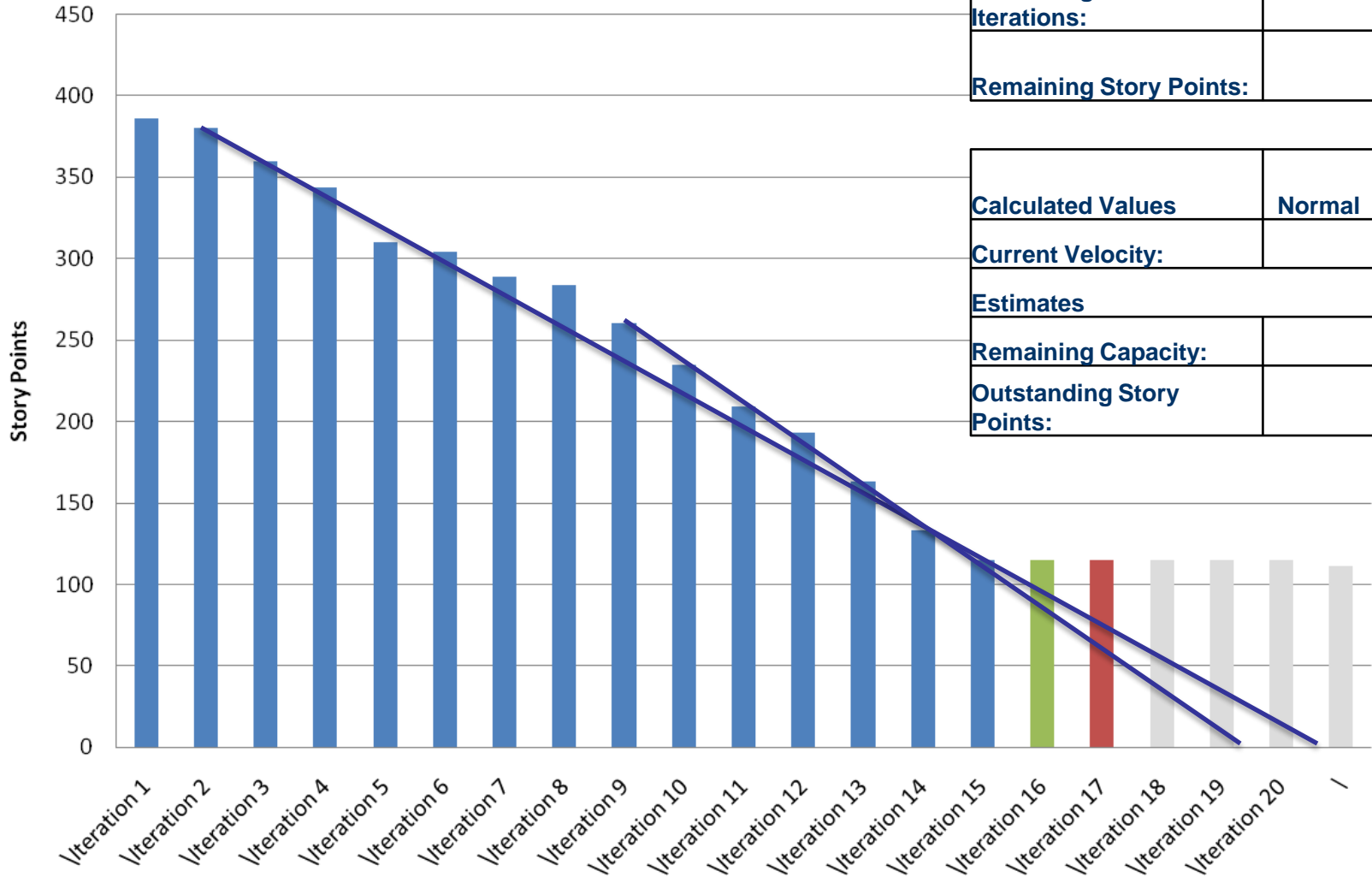


Actual velocity = 18



Team Velocity & Predictability

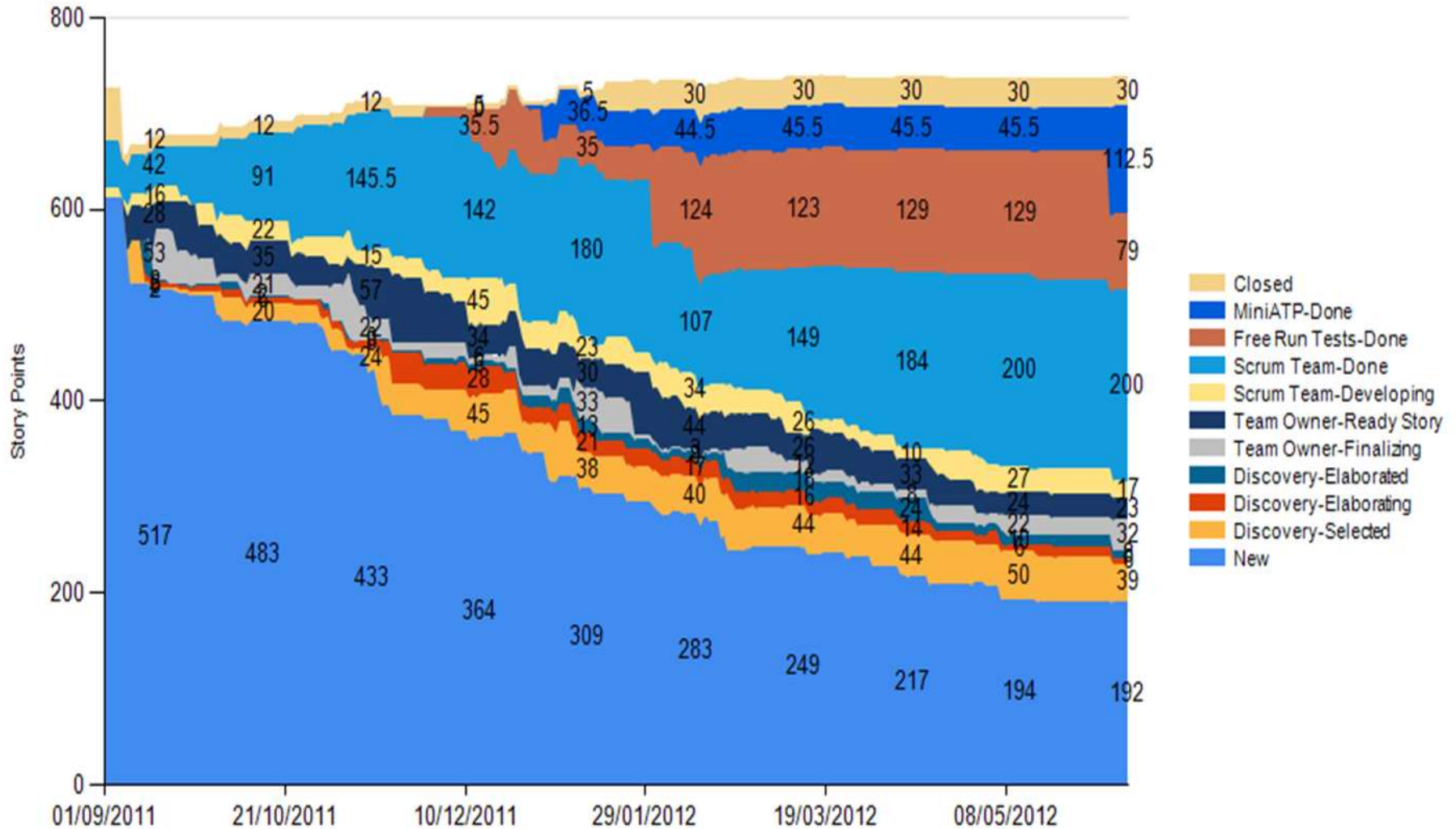
Remaining



Remaining Future Iterations:	
Remaining Story Points:	

Calculated Values	Normal	Worst Case
Current Velocity:		
Estimates		
Remaining Capacity:		
Outstanding Story Points:		

Cumulative Flow Diagram



▲ **Manage the entire process**

- ▬ Manage the flow
- ▬ Before Iteration – Planning preparations
- ▬ During Iteration – Early feedback; Free run tests
- ▬ After Iteration –
 - Fix bugs ASAP
 - Mini FQTs (avoid Integration hell)

▲ **Multi disciplinary discovery team**

- ▬ Work as a team
- ▬ Focus on ready stories

▲ Predictability

- ▬ Team Velocity as a parameter
- ▬ Data Analysis

▲ How to increase Team Velocity

- ▬ Always Retrospect
- ▬ Ready Story
- ▬ Remove impediments
- ▬ Team size – Diminishing Marginal Utility

▲ Trust the Team

Questions?





The End