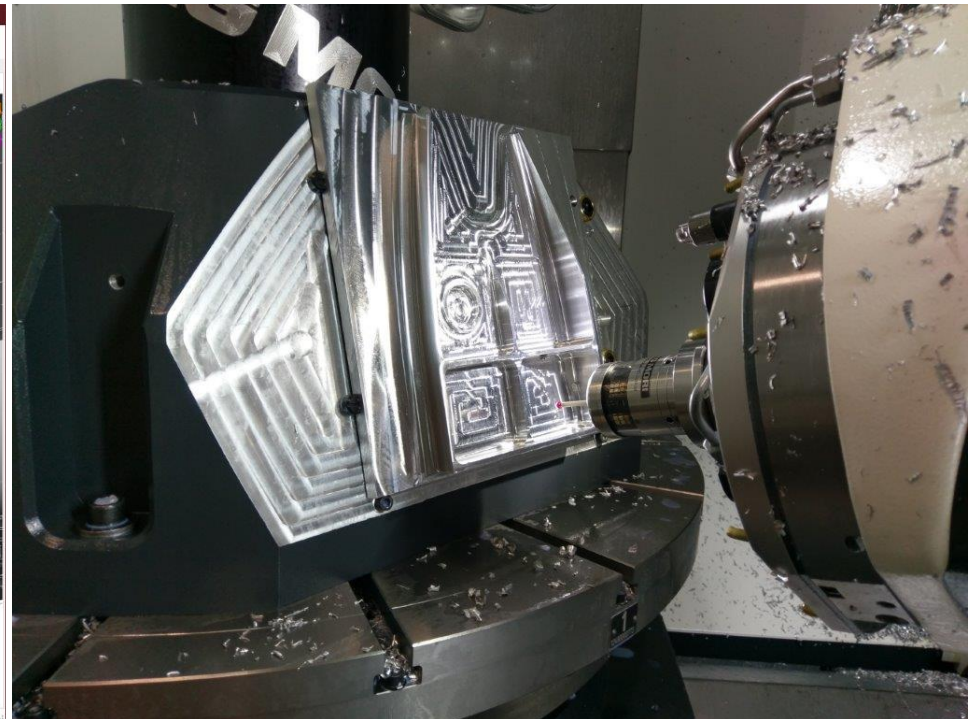
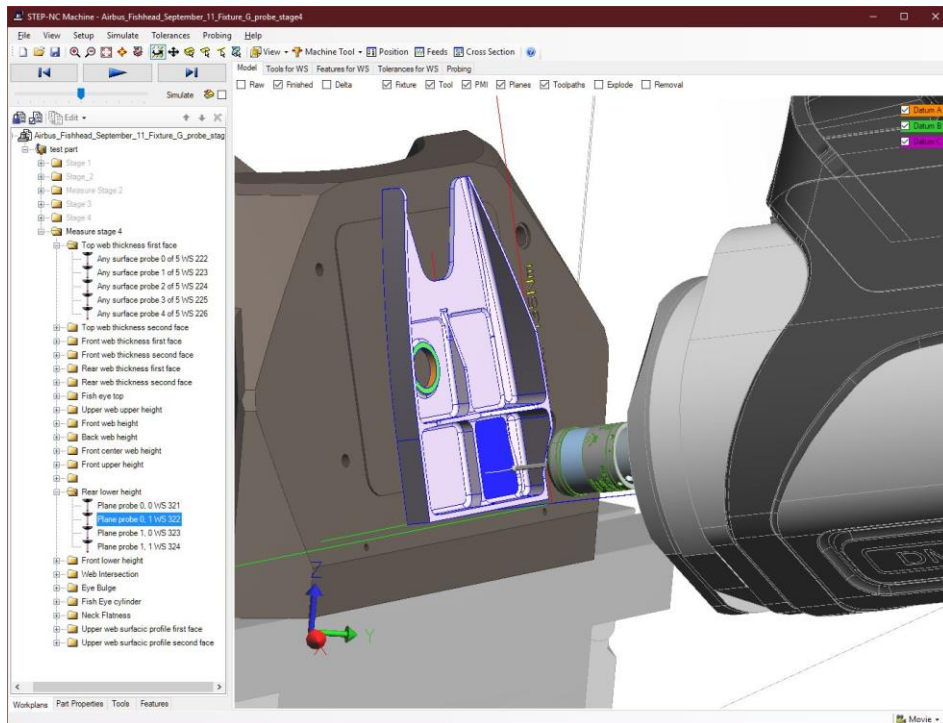




WG15 Digital Manufacturing





Attendees

Name	Company	Country
David Odendahl	Boeing	USA
Hyman Duan	Pera	China
Jay Ganguli	Boeing	USA
Stuart Gatt	Boeing	USA
David Loffredo	STEP Tools	USA
Matt Powley	Renishaw PLC	UK
Yiungsoo Jung	Myongji U	Korea
Bob Stone	DMSC	USA
Curtis Brown	Honeywell FMT	USA
Hyanjeong Lee	ETRI	Korea
Sung Hei Kim	ETRI	Korea
Gordon Shao	NIST	USA
Jin Young Lee	ETRI	Korea
Fumiki Tanaka	Hokkaido U	Japan

Name	Company	Country
Annalise Suzuki	Elysium	USA
Atsuo Soma	Elysium	Japan
Bob Lipman	NIST	USA
Benjamin Urick	nVariate Inc.	USA
Gregory Vernon	Honeywell FMT	USA
John Host	NIST	USA
Larry Maggiano	Mitutoyo	USA
Jenifer Herron	Action Engin	USA
Bengt Olsson	Sandvik	Sweden
Martin Hardwick	STEP Tools	USA
Darya Botkina	KTH	Sweden
Soon Han	KAIST	Sweden
Alisson Bernard	NIST	USA
Kenny Swope	Boeing	USA



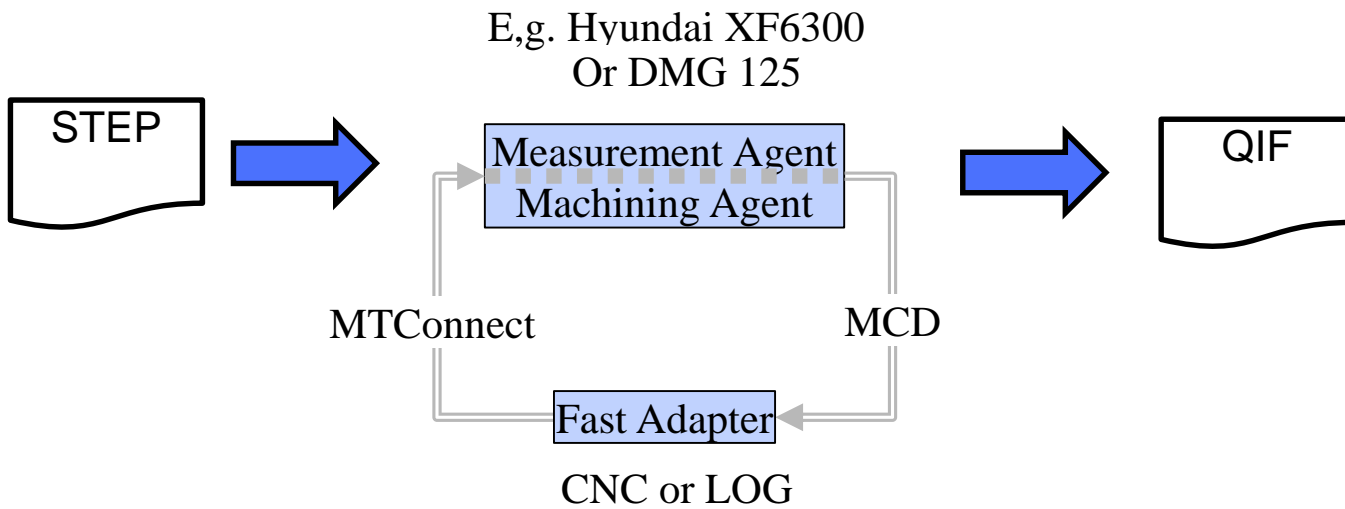
WG15 Digital Manufacturing

- Accomplishments in Chicago
 - Reviewed and submitted QIF for ISO Harvesting
 - Gave digital twin demonstrations on Industry day
 - Drafted first version of digital twin framework
 - Extended DIS for AP238 e2 to 48 months
 - Reviewed 10 digital twin submissions
 - Held first meeting of Digital Manufacturing IF



Digital twin framework

- STEP populates agents for physical elements
- MTConnect connects sensors to agents
- QIF reports quality results





Pilot Implementations

- Context-Based Machine Monitoring/State Display
David Odendahl, Boeing & OMAC
- Cutter Assembly Management
Bengt Olsson, Sandvik
- Integrated Flexible GD&T
Larry Maggiano, Mitutoyo
- Standards-Based Digital Twins of Complete Machining Systems
Gordon Shao, NIST
- Tooling Optimization
Darya Botkina, KTH



WG15 Digital Manufacturing

- Plans before Toulouse
 - Bi-weekly calls for pilot implementations
 - Bi-weekly calls for ISO 23247 CD
 - Submit AP238 e2 DIS