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Manufacturing Process Planning

Craig Currie – Product Manager

April 17, 2019

Agenda

- Manufacturing Process Planning Overview
  - Challenges
  - Key Capabilities
- Demonstration
- Benefits
- Future Direction

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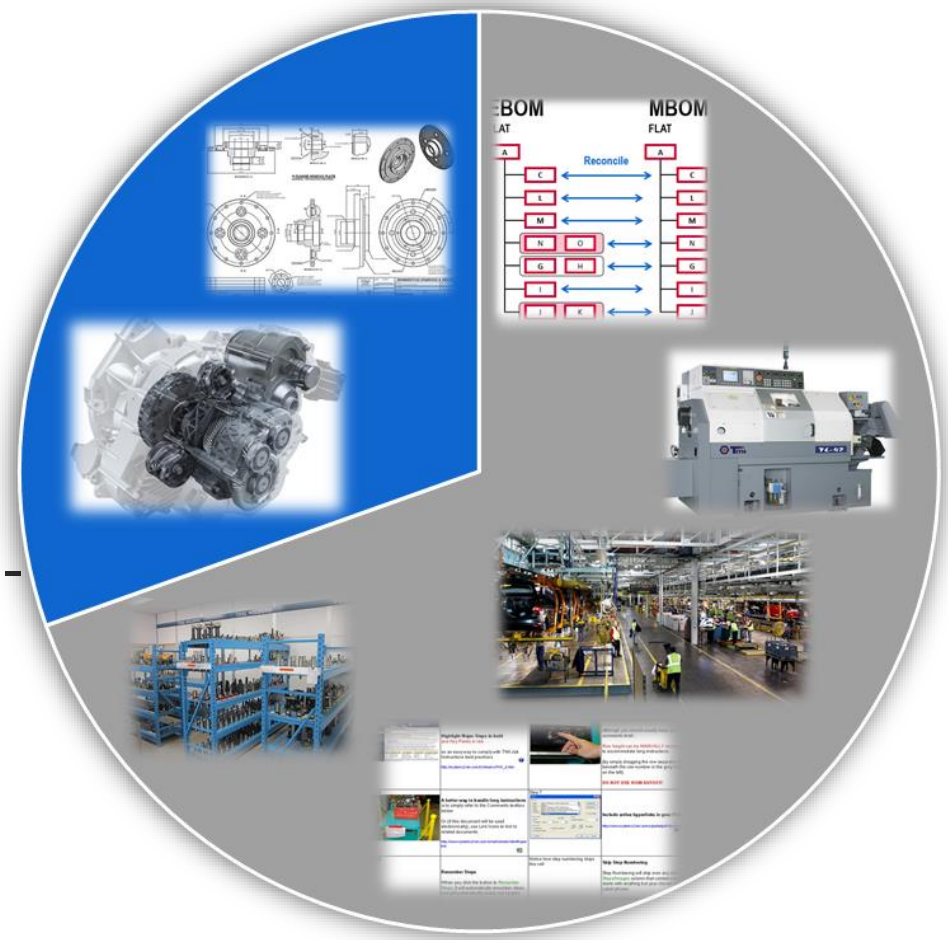
Industry Challenges

- Disconnected Engineering / Manufacturing data and processes
  - Manual MBOM authoring
  - No EBOM / MBOM reconciliation
  - No MBOM / Process Plan synchronization
  - No Process Plan / Work Instruction integration
  - Digital thread with As-Designed to As-Planned traceability not maintained
  - Unmanaged manufacturing data everywhere



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Aras Manufacturing Process Planning

- Manufacturing Process Planning [MPP] is built on the Aras PLM Platform -
  - Integrates the Product Development and Manufacturing Engineering activities
  - Concurrent Process Plan, MBOM and Work Instruction authoring
  - Automatic EBOM / MBOM reconciliation
- Released in August 2016
- Latest release MPP 11R3 on Innovator 11SP15
- Product Roadmap - MPP 12.0 R1 June 2019

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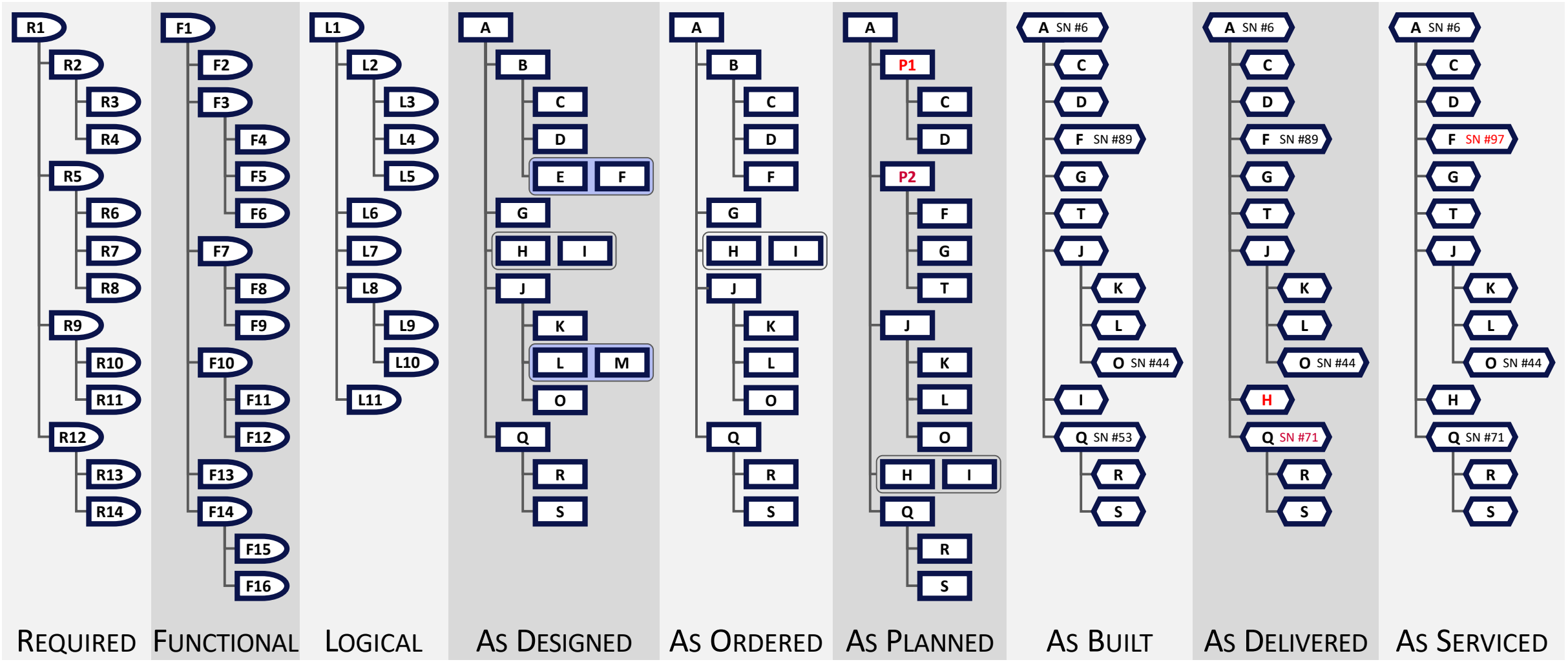
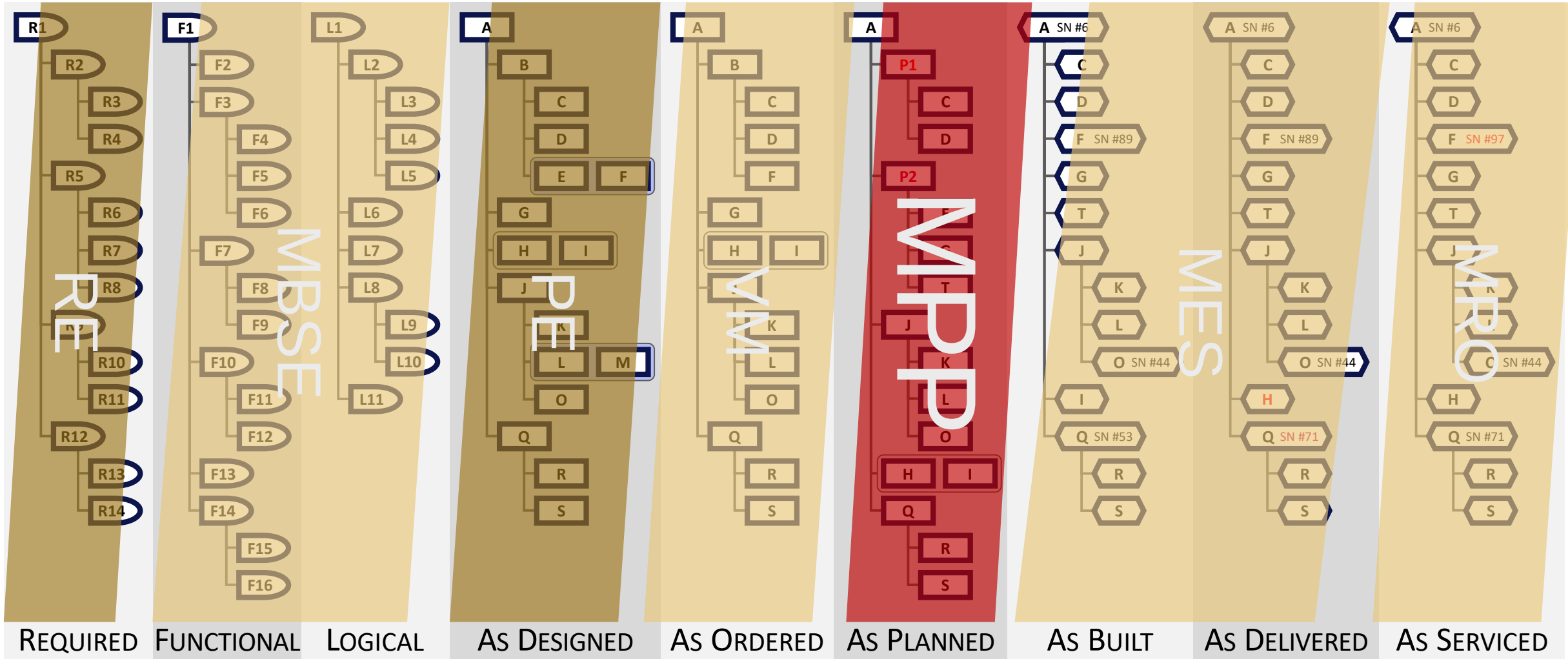
MPP in the digital thread



Concept | Design | Development | Launch | Manufacture | Service

MPP in the digital thread



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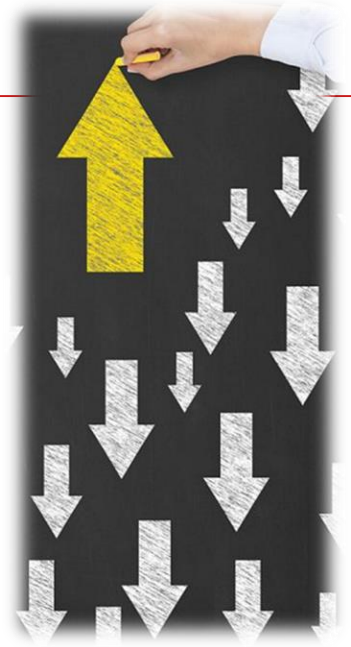
MPP Key Capabilities



- Concurrent authoring of Process Plan, Work Instruction & MBOM
  - Start anywhere, changes reflected across all the views
- Automatic EBOM/MBOM Reconciliation
  - Several real-time accountability check indicators for part consumption
- Resolve Location Specific Process Plan and MBOM structures
  - Same product at multiple different locations w/ different processes and consumed parts
- Conflict Resolution for Data Save
  - Enabled for multiple users to edit different levels of the multi-level MBOM at the same time
- Process Quality Binding
  - Binding between Process Plan and PFMEA

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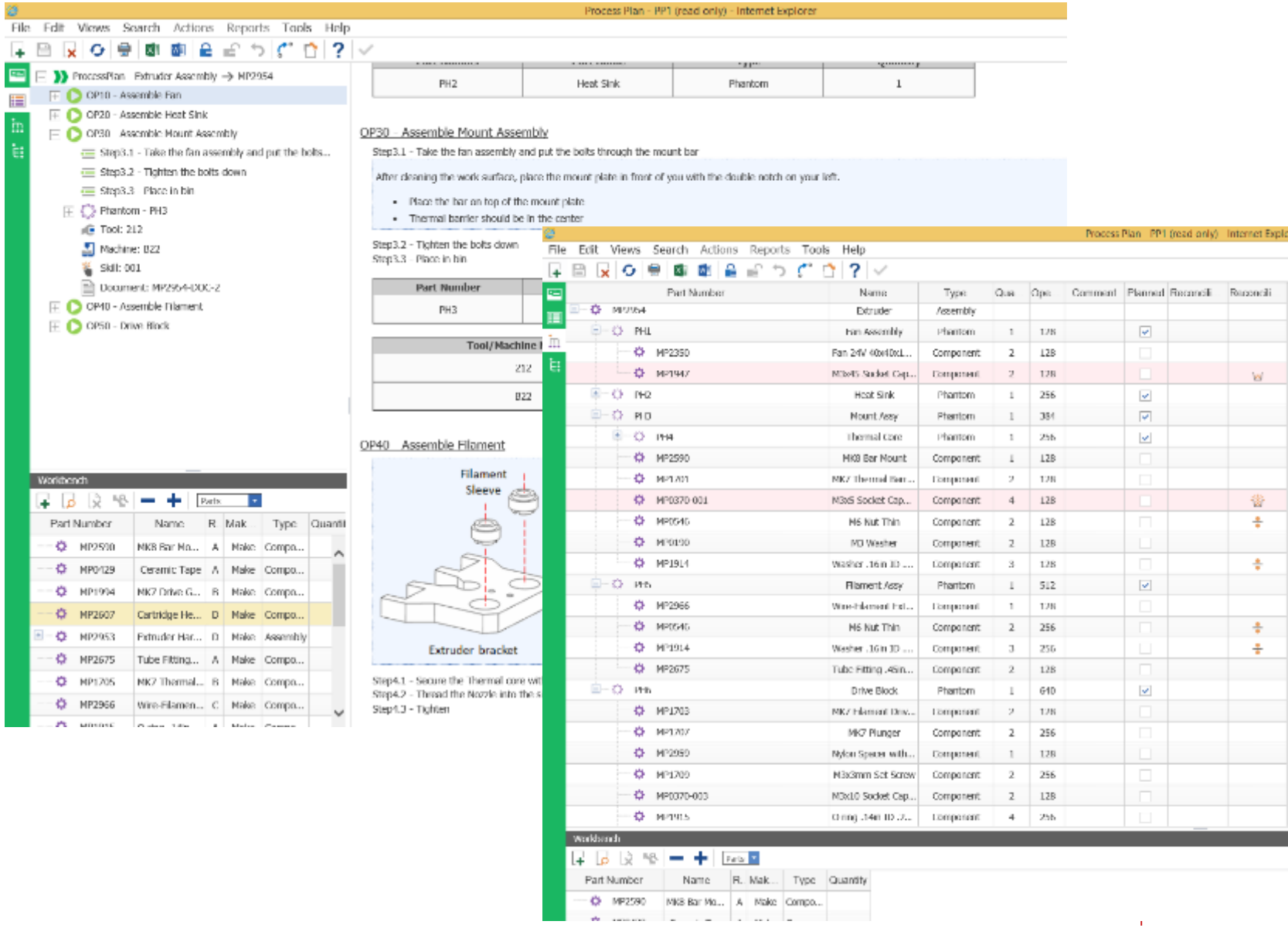
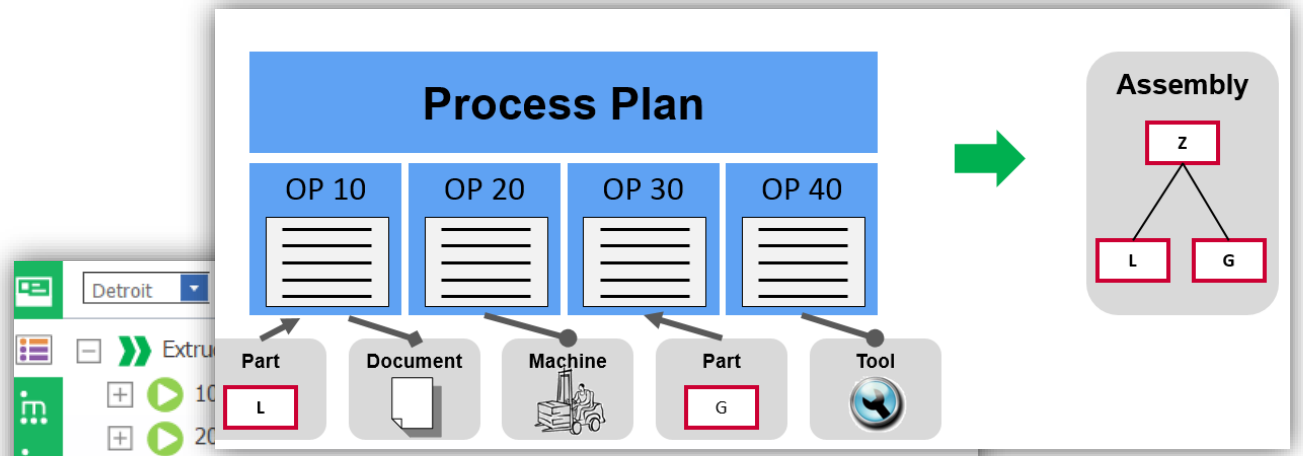
Aras Manufacturing Process Planning

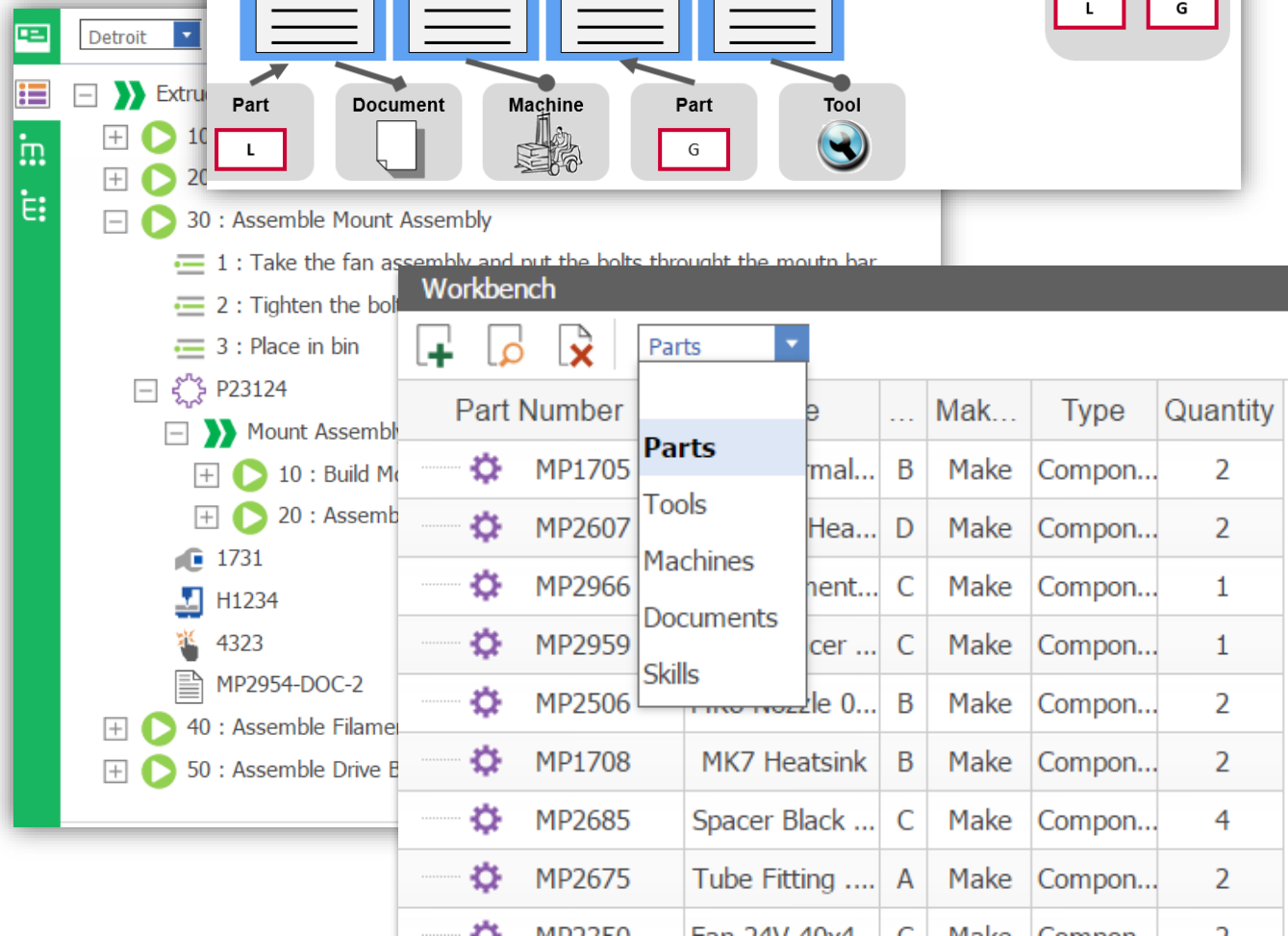
- Process Plan and Work Instruction authoring in PLM
- MBOM Editor optionally linked to Process Plans
- EBOM/MBOM reconciliation



Process Plans

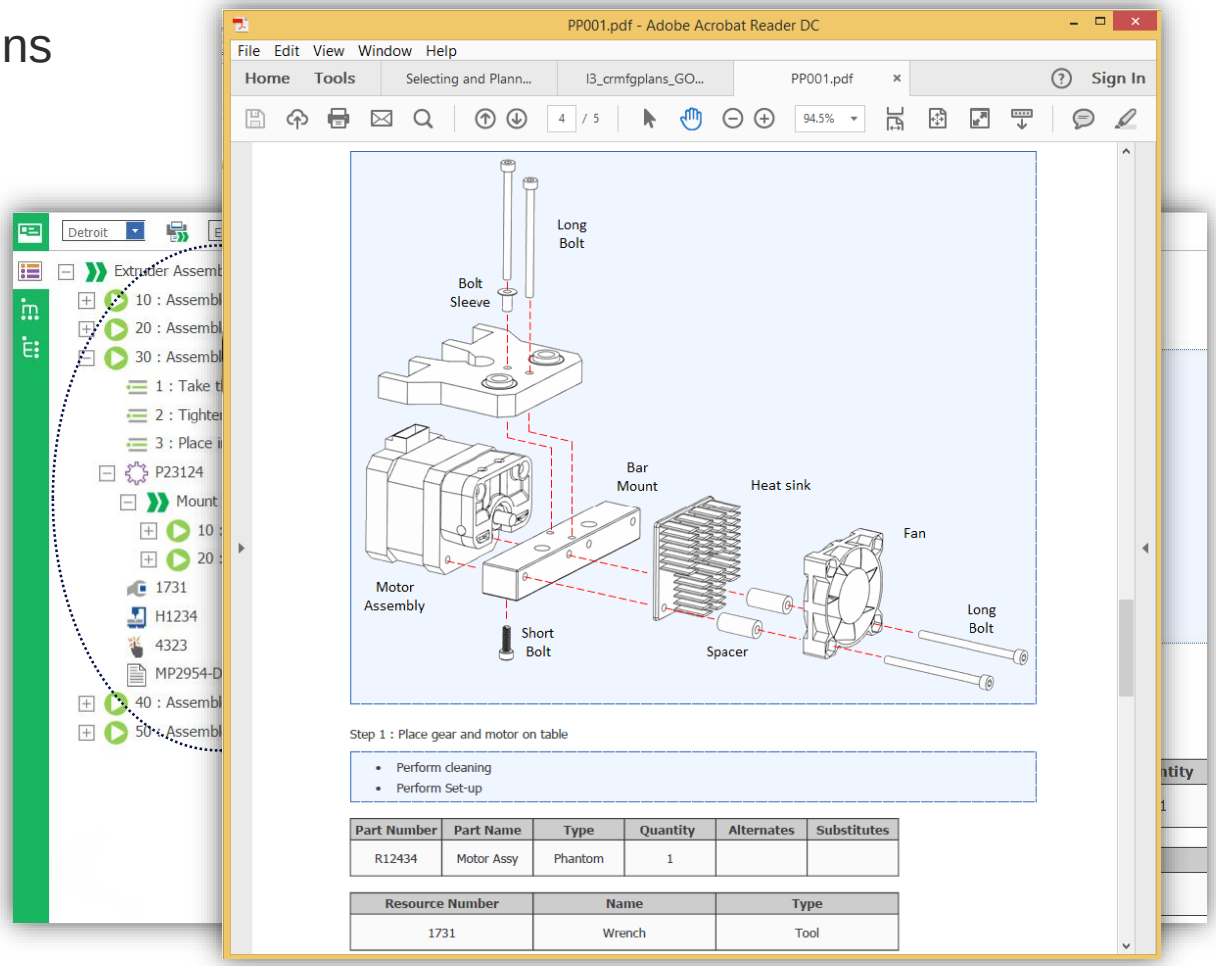
- Version controlled Process Plans
  - With Operations, Steps, Instructions
  - Consume Parts
  - Utilize Resources
  - Reference Documents, Skills, etc.
- Workbench
  - Drag and drop items to build the Process Plans
- Creation of Sub Plans
- Create Process Plans in Top Down or Bottom Up





Work Instructions (WI)

- Concurrent Process Plan and Work Instruction authoring
  - Synchronize Process Plan items with instructions
  - Author from WI view
  - Include text, media and tabular content
- Electronic and Visually rich WIs
  - Publish to PDF or web
- View Alternates and Substitutes of the consumed parts



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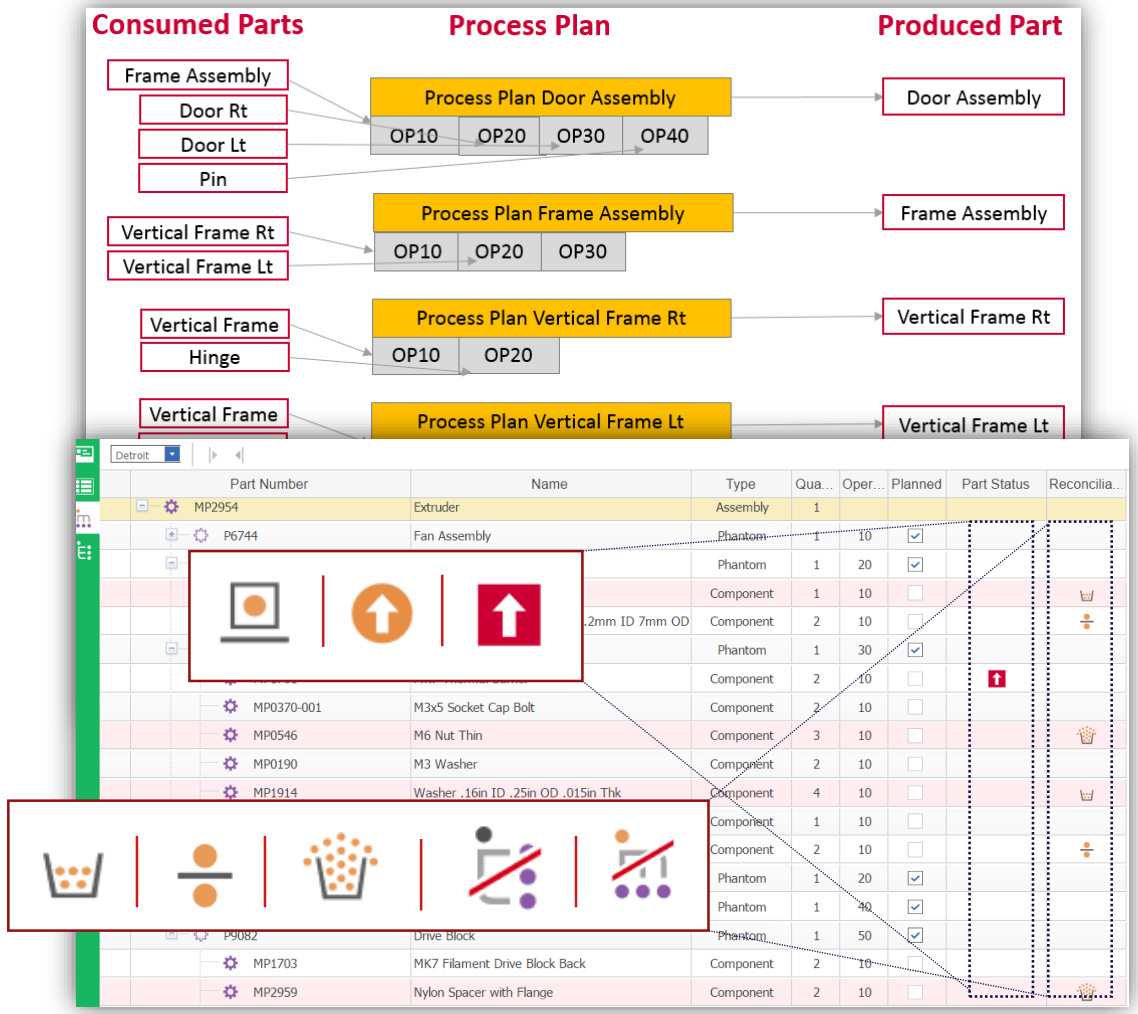
Manufacturing BOMs

- Version controlled MBOM derived from EBOM
  1. Drag and drop restructuring
  2. Concurrent Process Plan and MBOM creation
- EBOM/MBOM reconciliation
  - Real-time, automatic reconciliation indicators
  - Account for Quantity Split, Increase etc.
  - Account for Phantoms, Consumables etc.
  - Report EBOM parts not consumed in MBOM and vice versa
  - View make/buy, consumed part rev and version change status
- Plant-specific MBOMs (and Process Plans)



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MPP Demonstration

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Benefits

- Bridge the gap between engineering and manufacturing
  - Eliminate error-prone manual processes
  - Prevent time consuming and costly EBOM/MBOM conflicts
- Synchronize Process Plans, MBOMs and Work Instructions
  - Start anywhere, switch between views
  - Changes are reflected across all three views
- Preserve the digital thread with As-Designed to As-Planned Traceability
  - Automatic reconciliation
  - Manufacturing view of EBOM, Engineering view of MBOM

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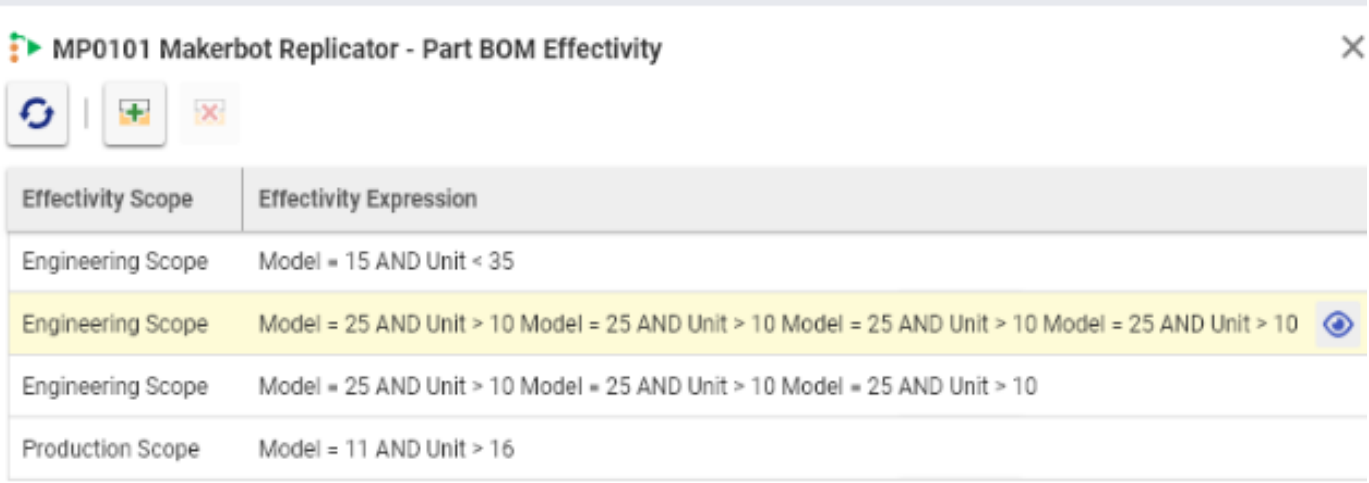
Future direction…

- MPP Operation library
- Operation branching.
- Incorporate Effectivity to MBOM / Process Plan
- Data input from Operator.
- MPP as core for Aras MRO and MES capabilities.



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Product Strategy Input Session: Aras for Manufacturing & Maintenance - MPP / MES / MRO

- **Date & Time -** Thursday, April 18, 2019, 10:30 AM - 11:15, 11:20 AM – 12:05 PM
- **Location Name -** Encanto B
- **Description**

Aras is adding focus on Manufacturing and Maintenance applications. This session will allow you to provide your input on what you would like to see as enhancements to the current applications, give input on those currently being planned, such as Manufacturing Execution Systems, and help set priorities for incorporating Maintenance Repair and Overhaul functionality into Aras Innovator.

- ***Includes a brief demonstration of the Aras Innovator MRO prototype***
- **Speakers**
- Craig Currie - Aras
  Graeme Taylor - Aras

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Thank You

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