Sensing Your Way Through Closed-Loop Manufacturing

Hexagon Manufacturing Intelligence

4 May, 2017

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Agenda

1. What is Closed-Loop Manufacturing?
2. Importance of Sensing in Closed-loop Manufacturing
3. Implementing The Sensing Element

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Speaker Information

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What is Closed-Loop Manufacturing?

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What is Closed-Loop Manufacturing?

- Controlled repetitive manufacturing process
- The ideal manufacturing environment
  - Continuous
  - Maintenance free
- In reality human intervention is needed
  - Optimized with quality data
  - Needs to be implemented efficiently
  - Maintained through a digital thread

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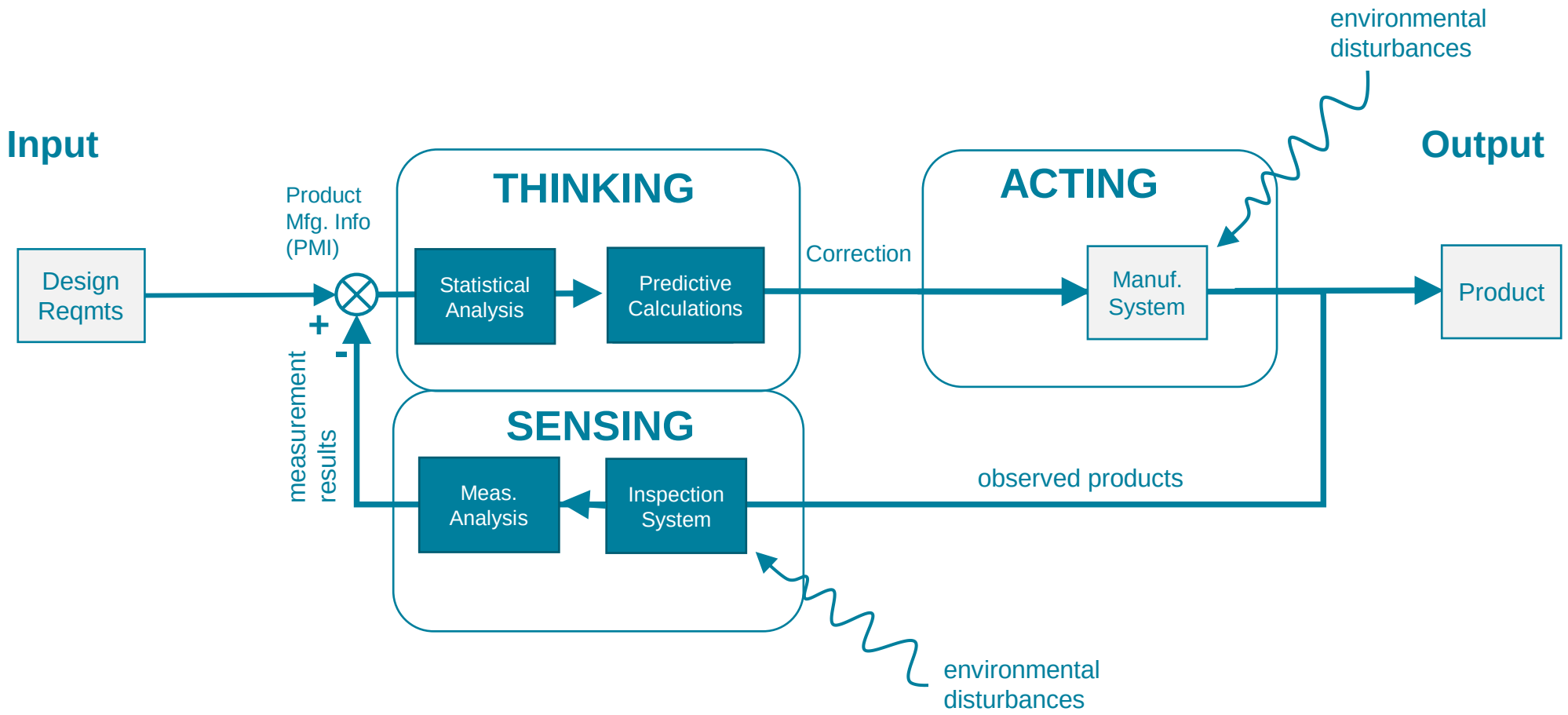
Traditional Closed-Loop Manufacturing Process



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The Role of Sensing In Closed-Loop Manufacturing

- Necessary to provide quality data for feedback
- Needed to validate the first part before production
- Needed to close the loop for continuous process control
- Requirements
  - Accurate and transferrable data
  - Efficiently Implemented
  - Easily Maintained

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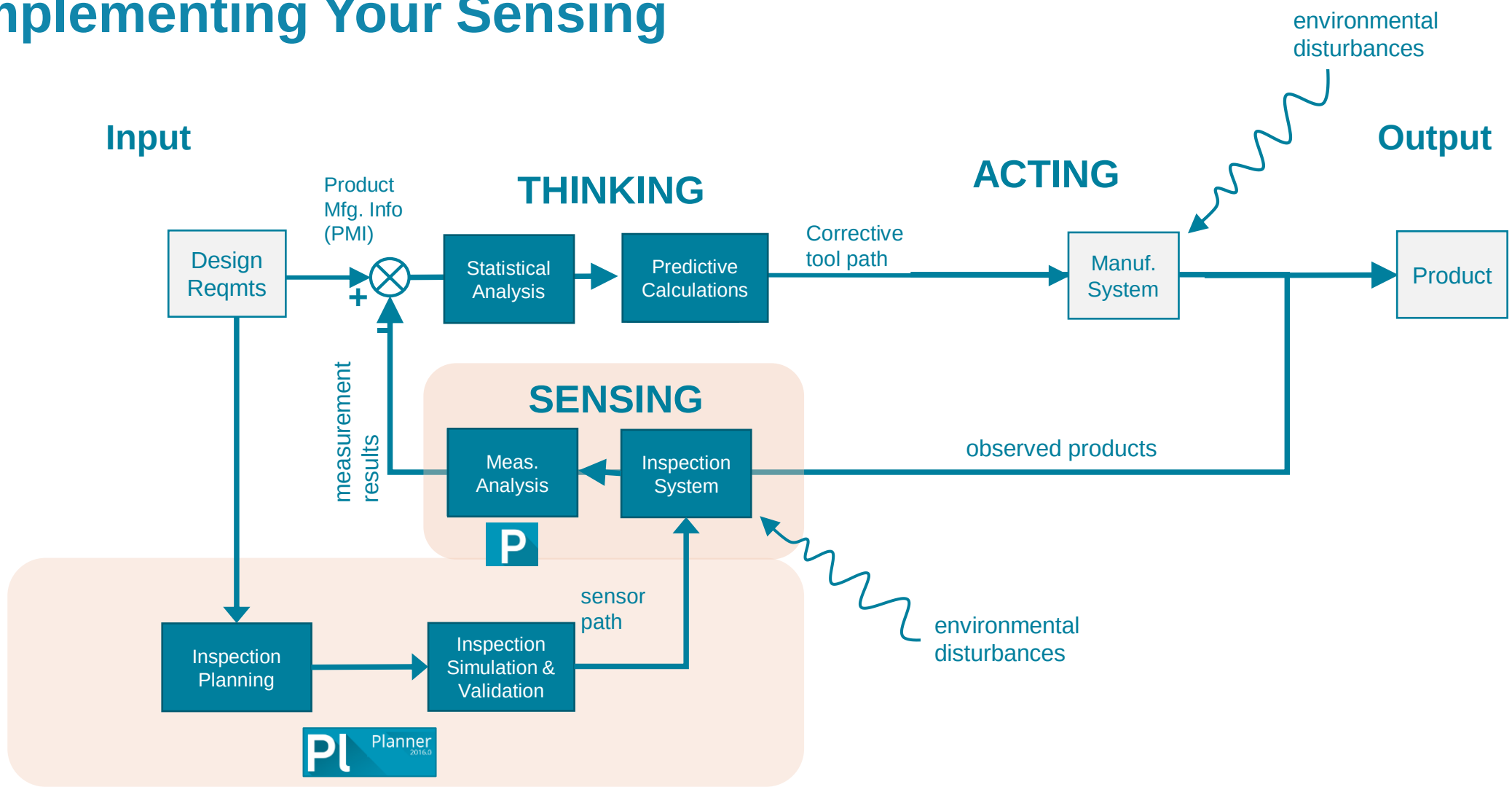
Implementing Your Sensing



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Implementing The Sensing Element

A good process starts with a good plan…

1) Design requirements must be defined
2) Design requirements must be validated
3) Inspection plan must created
    1) Probe path
    2) Measurement calculations
    3) Report methods
4) Inspection plan then validated
    1) CMM simulation and inspection plan testing
    2) Before you execute on machine / go live
5) Execute the inspection plan
6) Communicate data for plan maintenance

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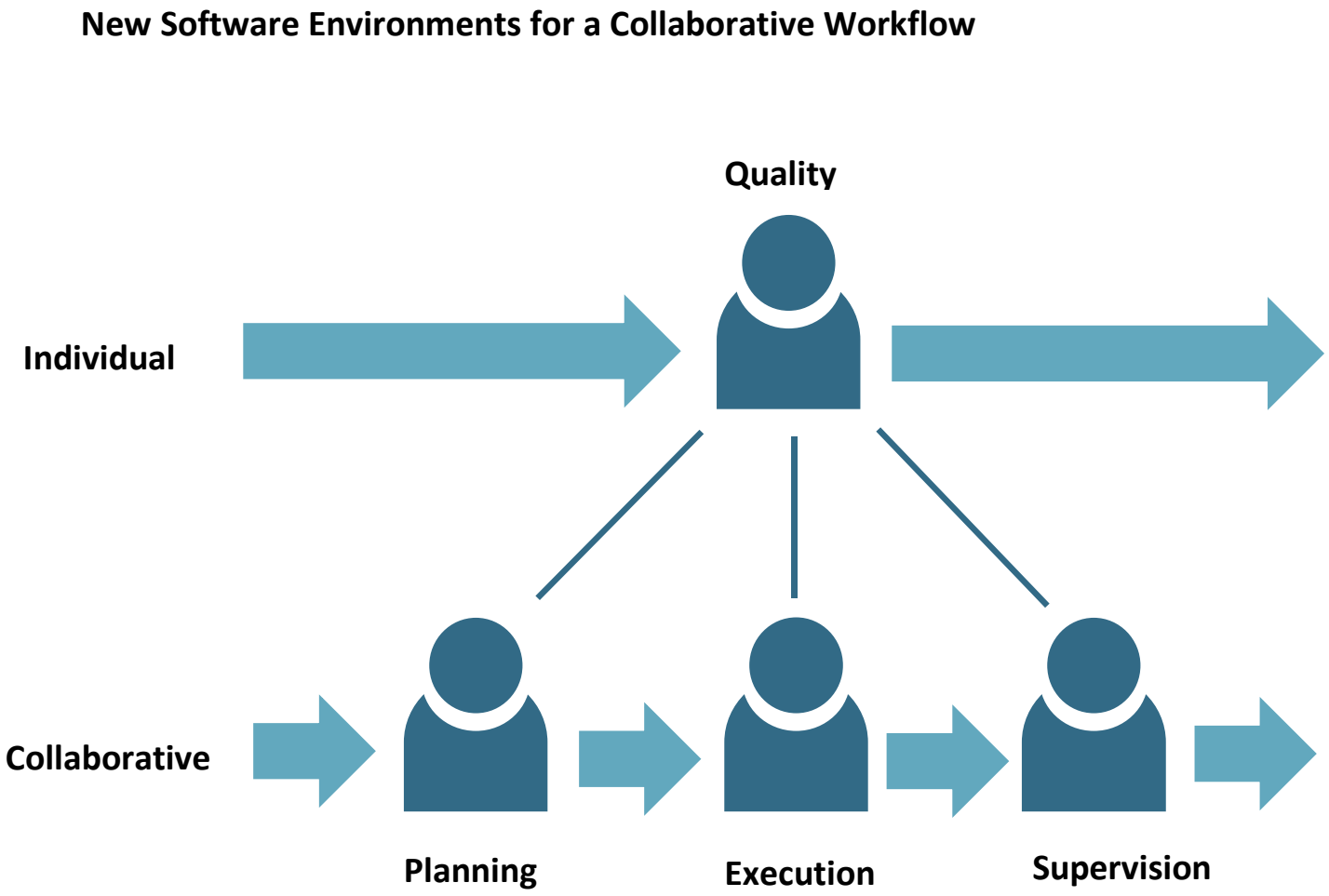
How We Can Make Implementation Easier?

Two aspects of this:

1) Workflow Efficiency
2) Technical Tools



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Workflow Efficiency:

Plan

Execute

Report

Don't tie up your machine!

Divide and conquer

Technical Tools

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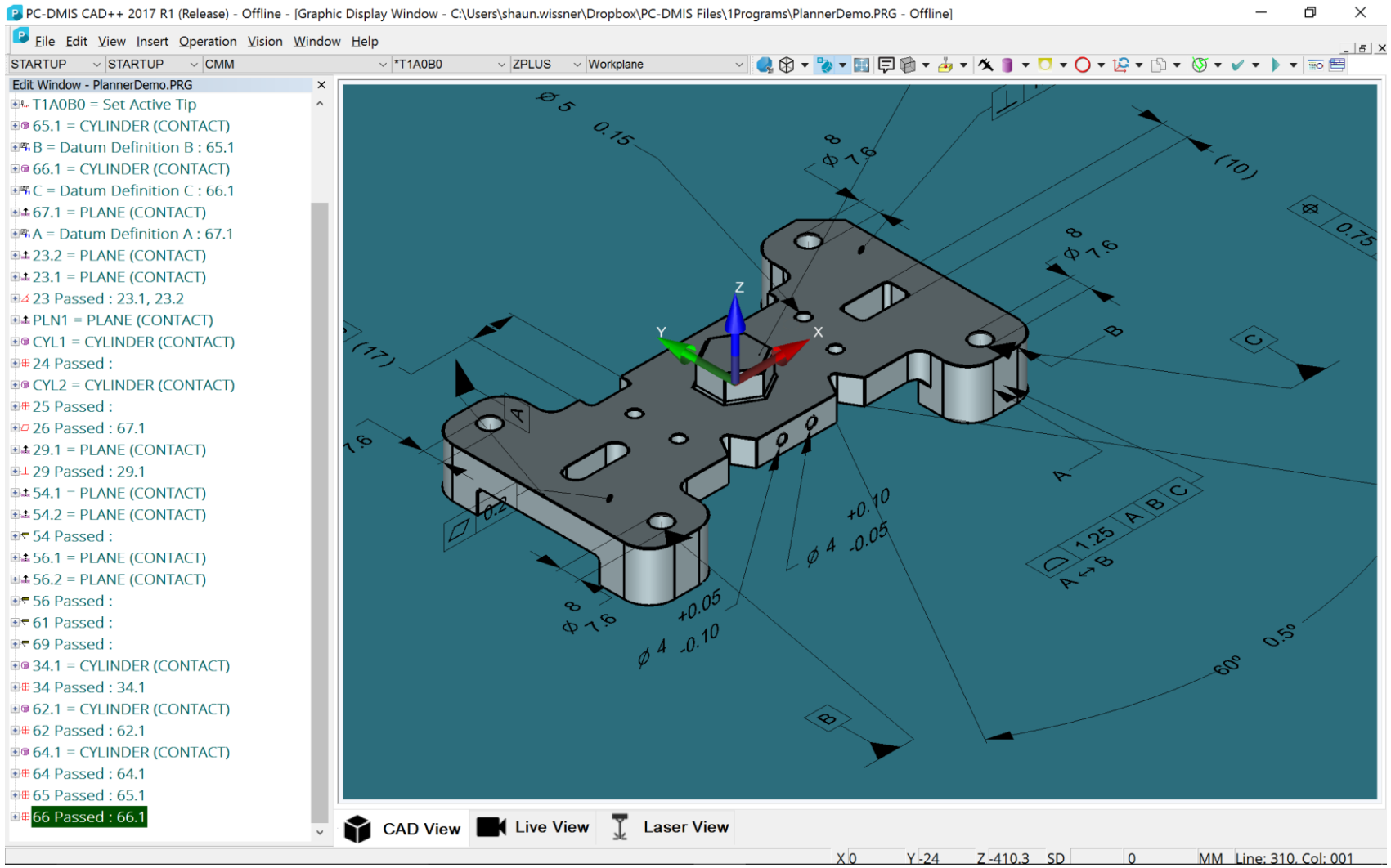

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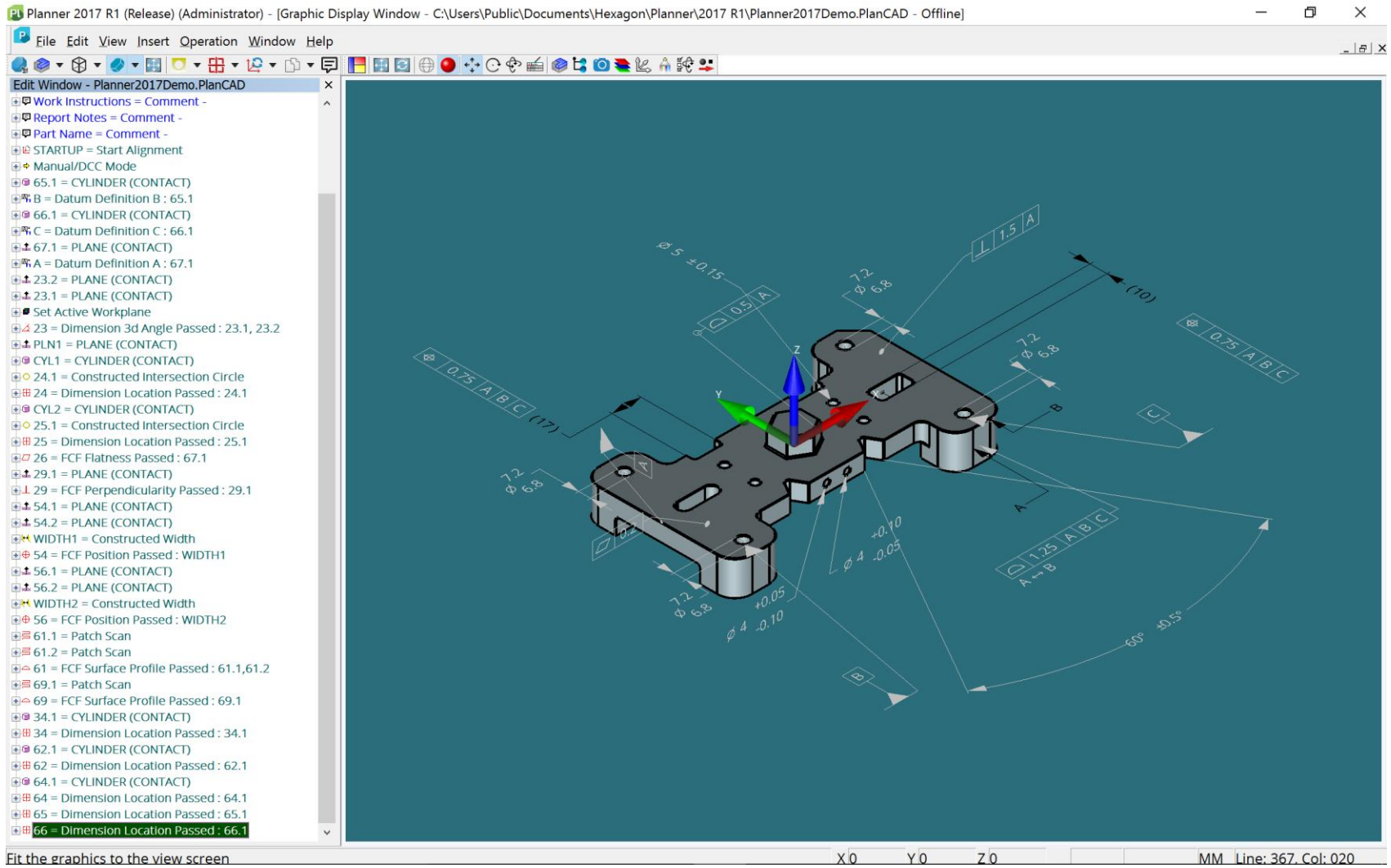
Planner Software for Design Professionals



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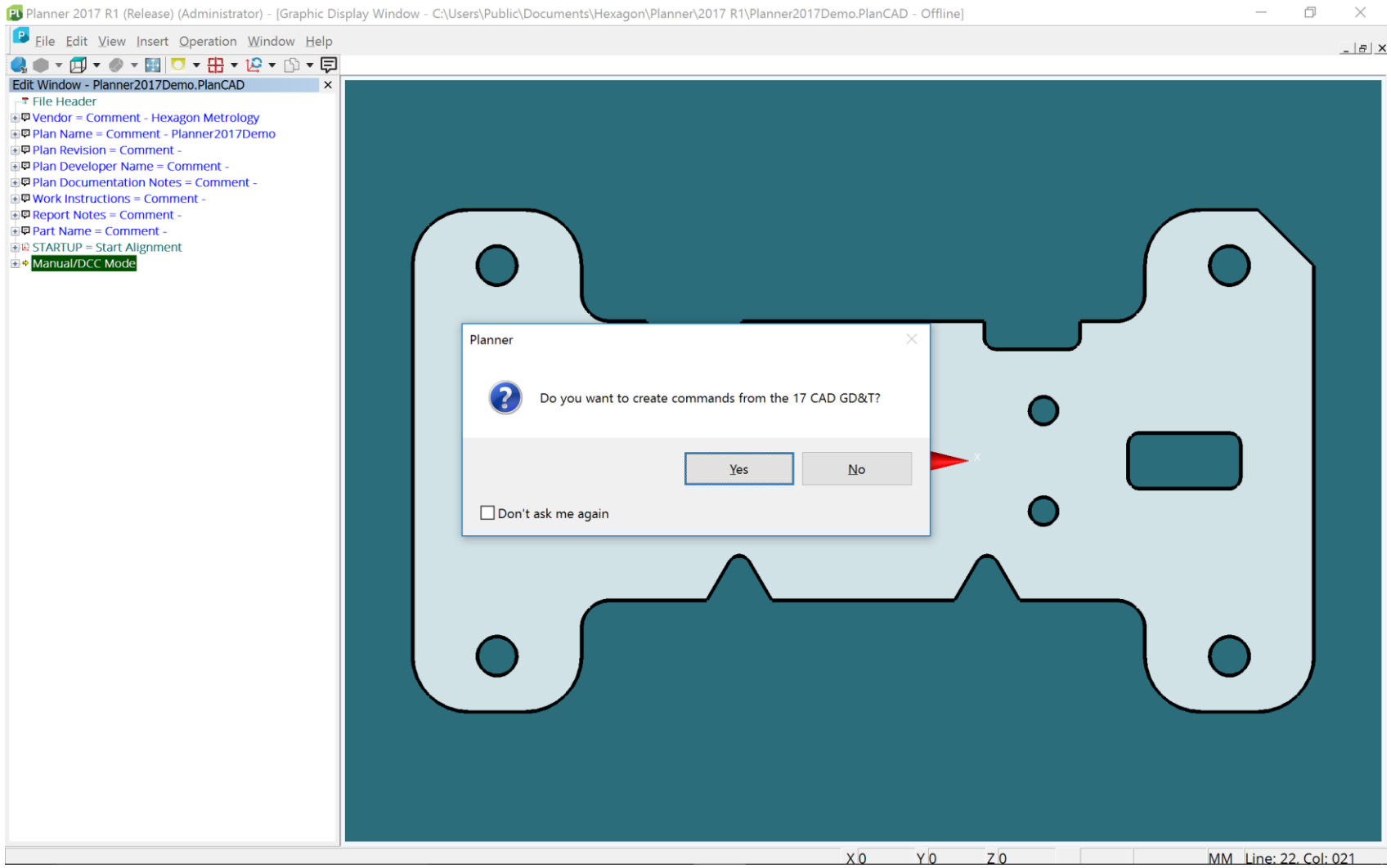
Planner Software for Design Professionals: Automatic Planning



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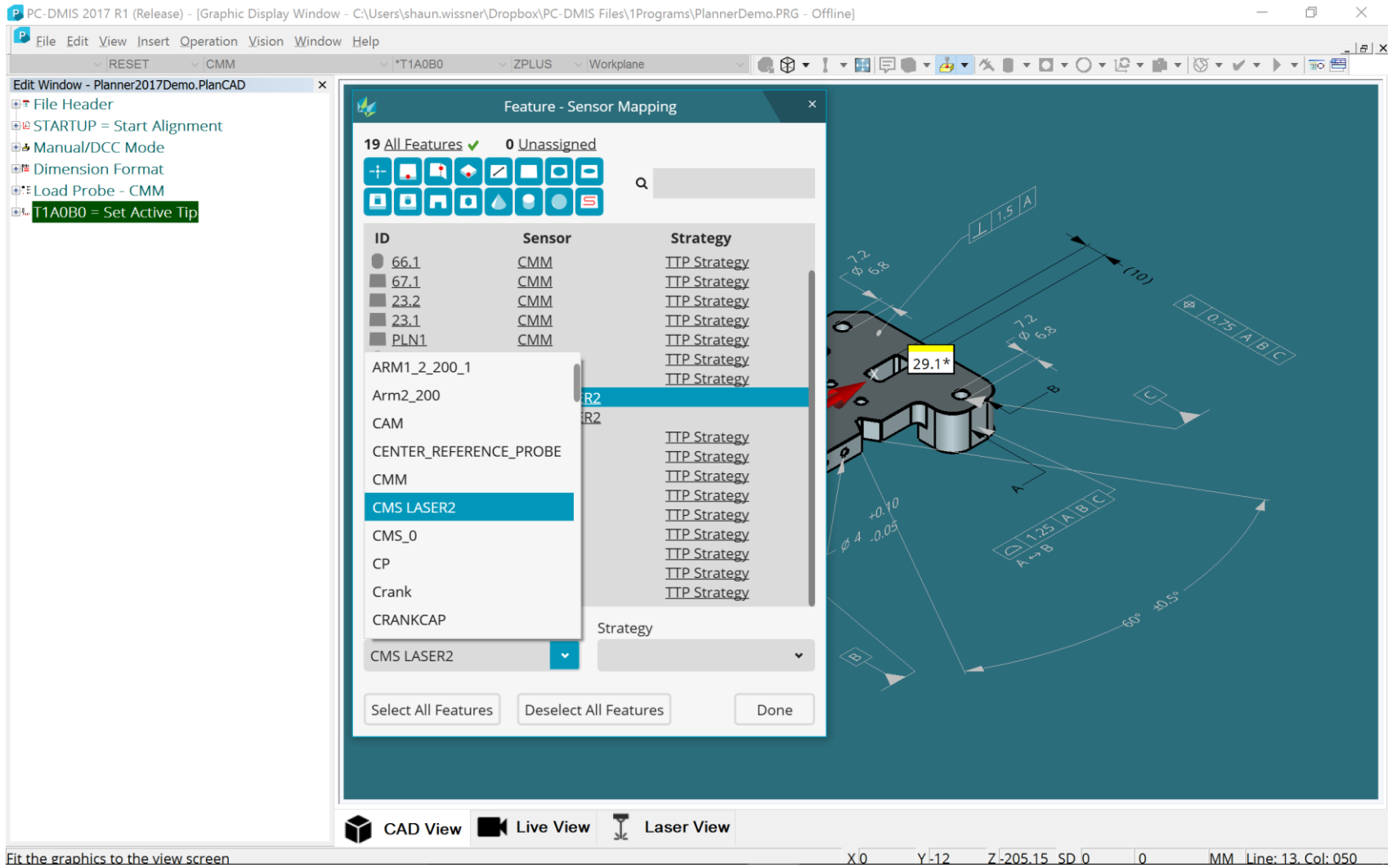
Planner tools for PC-DMIS



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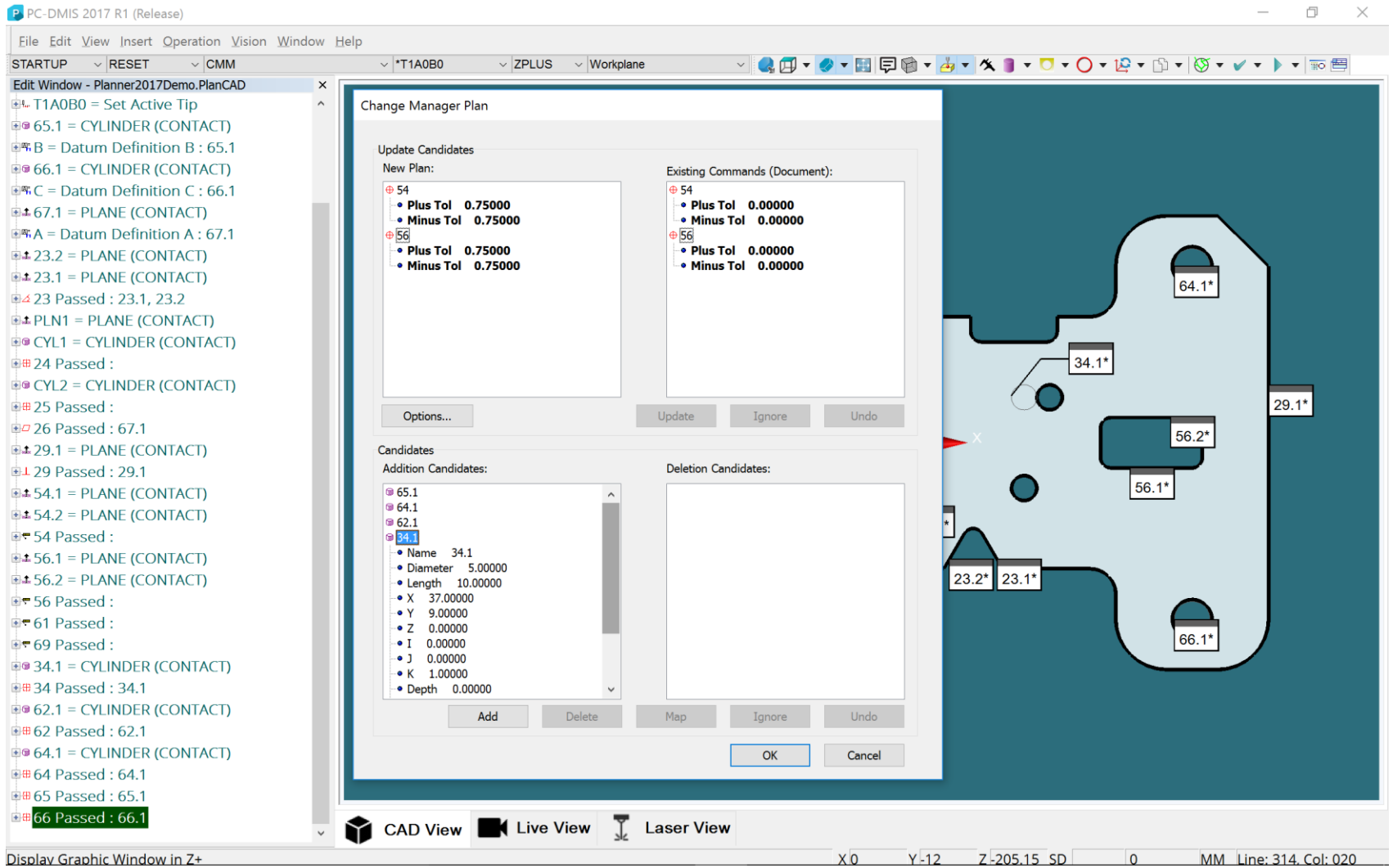
Change Management



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GLOBAL PC-DMIS USERS' FORUM

AT HxGN LIVE 2017

USER GROUP SESSIONS:

- Reporting – a tips and tricks session to help users unleash the full power of PC-DMIS reporting
- Motion – getting the best from clear planes, clear cubes, auto path, path from feature and other PC-DMIS motion tools

TECHNICAL SESSIONS:

- PC-DMIS Application Improvements and Measurement Routine Optimization
- Shop Floor – PC-DMIS Optimization Workshop
- Live User Echo Session – user ideas that influence PC-DMIS development
- PC-DMIS Power Users

METROLOGY LOUNGE WALK-IN SESSIONS:

- Drop-in clinic
- Speak one-on-one with a PC-DMIS expert
- Ask us anything!

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Questions?

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