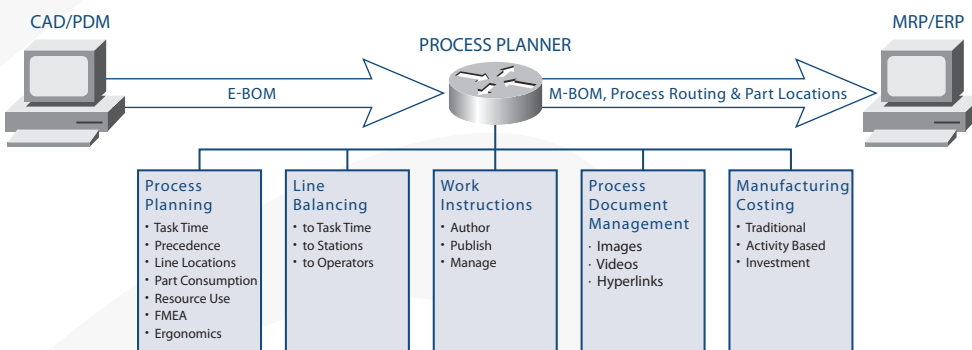


ASSEMBLY PLANNER WILL CUT NEW PROCESS DEPLOYMENT EFFORT BY 20% TO 50% AND VIRTUALLY ELIMINATE COMMON STARTUP ISSUES RELATED TO TASK, RESOURCE AND PART PLACEMENT FOR COMPLEX MIXED-MODEL ASSEMBLY LINES.

If you are a manufacturer of complex assemblies involving 100's to 1,000's of parts, with an extensive portfolio of model and option configurations, then Assembly Planner is for you. Assembly Planner was designed by industrial engineers, for industrial engineers, to provide an integrated environment for the design and deployment of complex production systems to the shop floor, quickly and accurately, with minimal effort. In addition, by linking machining and assembly processes to the components created and consumed by those processes, Assembly Planner can automatically update process routings and task/part/equipment assignments in the factory as new versions of components or models and options are released. Built around the MS Excel and AutoCAD applications that are most often used by process planners today, Assembly Planner is a transitional tool that is able to fit into the process engineer's existing data and workflow for an immediate increase in productivity.



LET ASSEMBLY PLANNER MANAGE YOUR PROCESS CHANGES. AGGREGATE, VERIFY AND RECONCILE YOUR CURRENT WORD, EXCEL, AUTOCAD, VISIO AND PAPER FORM-BASED PROCESS INFORMATION TO CREATE A LEAN ELECTRONIC PROCESS FROM RECEIPT OF THE BOM TO SUBMISSION OF THE PART AND ROUTING INFORMATION TO ERP.

ASSEMBLY PLANNER WILL SHORTEN LAUNCH TIMES AND IMPROVE EFFICIENCY:

- Increased Line Throughput by 22%
- Reduced labor by 10%
- Cut Assembly Line Operating costs by \$50K per month
- Removed, or automated, 14 out of 36 steps to launch a new product to the assembly line.
- Saved over 2 weeks of engineering time per rebalance, and nearly eliminated deployment errors related to task, part, and resource placement.
- Cut assembly errors (caused by using obsolete parts, torque specs and processes) by over 50% by automating shop floor instructions to the line and electronically verifying that operators viewed the changes.

Proplanner was founded by Dr. David Sly, a world-renowned expert in Process and Plant Engineering systems that extend and integrate the capabilities of current applications, such as AutoCAD and Excel. Since Dr. Sly invented the first CAD-based material flow analysis application 20 years ago (a predecessor to Flow Planner), he has created a suite of powerful and integrated applications for Time Estimation, Process Management, Ergonomics Assessment, Line Balancing, Workplace Design, eBOM/mBOM Reconciliation and Work Instruction Generation with synchronized deployment. Previously only available to the largest corporations, Dr. Sly was able to combine the power of Microsoft's new .NET development environment and the latest Internet deployment technologies to provide the most cost-effective MPM solution in the market today.

INFORMATION: 1-515-296-9914 • INFO@PROPLANNER.COM • WWW.PROPLANNER.COM

3-STEP PROCESS

USING ASSEMBLY PLANNER ON YOUR NEXT PRODUCT LAUNCH IS A SIMPLE 3-STEP PROCESS.

- 1.** Assembly Planner starts with an electronic BOM. This BOM can be read from virtually any MRP/ERP/PDM or spreadsheet application. Users can also author their BOM directly in Assembly Planner and even manage their CAD files and component information in the absence of a corporate PDM application.
- 2.** Assembly Planner provides a comprehensive set of process-authoring applications. This includes editors and parsers for popular pre-determined time standard systems (such as MTM, MOST and MODAPTS), as well as a built-in stopwatch feature that lets you easily enter and evaluate multiple observations from pre-recorded digital videos (which are also managed by the application) and live studies. Users then link these new tasks to the components and people/tooling/machines, text, pictures and CAD files necessary in performing these tasks and describing them to the operators.
- 3.** Finally, Assembly Planner provides a powerful and easy-to-use line balancing application.

The user can assign tasks to locations on the assembly line automatically or manually. Users can define multiple scenarios, then quickly and easily evaluate the impact of an infinite array of models, options and production sequences on the line.

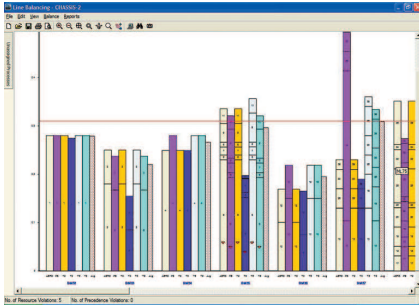
The rest is automatic. Assembly Planner reconciles the process plan (mBOM) to the product list (eBOM) as well as the Plant (lines/workstations) and Resources (operators/tooling/machines). Once validated, Assembly Planner generates the task, part and resource location assignment reports, and also posts the work instructions to the shop floor and informs the operators of changes.



ASSEMBLY PLANNER'S INTEGRATED APPROACH PROVIDES FAST AND ACCURATE RESULTS

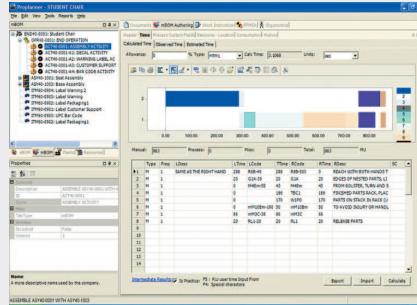
The Assembly Planner process engineering database is a place for you to keep your process plan up-to-date. The ability to relate the process steps to parts, resources, and plant locations gives you the power to do more process engineering tasks within one system. The Assembly Planner database provides modules for LEAN charting, process reporting, work instruction authoring and viewing, resource management, and much more.

LINE BALANCING



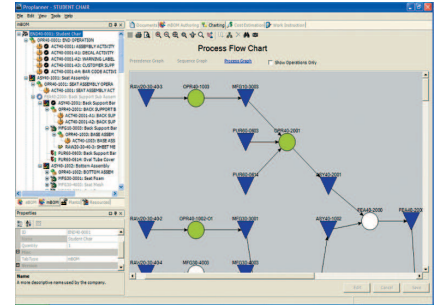
Drag tasks to stations, or let Assembly Planner do it for you. Quickly see conflicts with models, options, resources, and precedence.

TIME STANDARDS



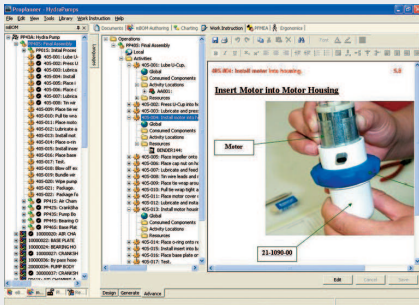
Use the built-in pre-determined MTM, MOST and MODAPTS standards or, for video-based and live observations, our stopwatch feature.

LEAN CHARTING



Automatically generates Product Structure Maps, Process Activity Charts, Precedence Diagrams and Sequence Graphs from the mBOM.

WORK INSTRUCTIONS



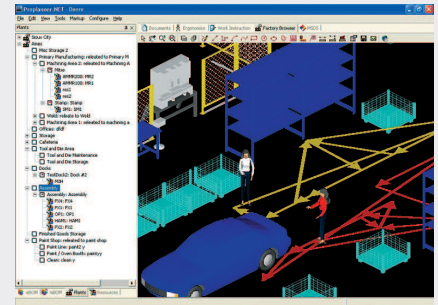
Operation method sheets are automatically created based on the process plan. Print them, or output them to our shop floor viewer.

PROCESS QUALITY

Item #	Function	Failure Mode	Failure Cause	Failure Effect	Current Control	Proposed Control	RPN	Severity	Detectability	Prevention
1	Motor Housing	Motor Housing does not fit	Motor Housing is not aligned	Motor Housing is damaged	Visual inspection	Visual inspection	100	10	10	10
2	Motor	Motor does not rotate	Motor is not connected	Motor is damaged	Visual inspection	Visual inspection	100	10	10	10

Generate PFMEA and DFMEA studies and automatically compile reports for output to Excel, paper or our shop floor viewer.

LAYOUT DESIGN



Visually link resources to stations and automatically generate operator walkpath and material flow "spaghetti" diagrams within AutoCAD (optional).

MANUFACTURED COSTING

Item	Part	Qty	Unit Cost	Total Cost	Material	Labour	Overhead
1	Motor Housing	1	100.00	100.00	80.00	15.00	5.00
2	Motor	1	100.00	100.00	70.00	15.00	15.00

Compile a list of the resource specific costs for each process step (machining or assembly) for each model and option.

ERGONOMIC ASSESSMENT

Job	Operator	Production Rate	Posture	Force	Frequency	Duration
Motor Housing	Operator	< 1 hr	1-4 hr	> 4 hr	Comments	
Motor	Operator	< 1 hr	1-4 hr	> 4 hr	Operator completes physical tasks	

Ergonomics Assessments are user-definable "Smart Forms" linked to operations, activities and locations for safety studies.

PROCESS VALIDATION

Level	ID	Version	Level	ID	Version	Change Type
1	8700A: Propulsion System	1				Deleted
			1	8700B: Propulsion System	1	Added
2	8701: Siemens	1				Deleted
			2	8702: Alstom	1	Added
1	9701: Bathroom Car Set	1	1	9701: Bathroom Car Set	1	-
1	9702: Lounge Car	1	1	9702: Lounge Car	2	Change
1	9703: Cab Car	1	1	9703: Cab Car	1	-

Reconcile your eBOM to our mBOM (process routing) and electronically verify part, resource and task assignments to locations.