BIGBEAR.AI

See Clearly.
Predict Accurately.
Act Confidently.

Manage Change So it Doesn't Manage You.

ProModel's AutoCAD Edition assists customers in accurately simulating throughput of their processes – inside of the AutoCAD they are currently using to represent spatial layouts today.

SUPERCHARGING YOUR LAYOUT PROCESS BY ADDING DISCRETE EVENT SIMULATION CAPABILITIES TO YOUR LAYOUTS

You (or your company) have taken the first steps toward reaping the benefits that a digital twin model of your facility can provide. You have begun the journey of getting your critical areas that were previously in 2D migrated to 3D utilizing the Autodesk Factory Design Utilities.

This assists in several ways.

1. A standardized library of components. Which are accurate in size and configuration, allows designers to create accurate layouts in half the time it took previously.
2. The use of reality capture (laser scanning and photogrammetry workflows) allows designers access to the most accurate, up to date view of the area that they are modifying – avoiding costly mistakes and errors that put delivery dates at risk.
3. Better documentation that not only shows the entire design better but allows for more complete documentation for installation before operation and more complete, easier to navigate information for maintenance and operation.

As AutoCAD's .DWG format is arguably the most prevalent CAD deliverable in the market today, it has become a standard of sorts for those laying out their facilities, either for new design or upkeep on an existing process or plant. The Autodesk Factory Design Utilities provide the designer with tools that make it easy to design in either 2D or 3D in a linked workflow – and deliver the 2D AutoCAD documentation that most customers require.

But there is a component missing. No matter how well a line fits; or installs with the greatest efficiency – if it does not deliver the correct amounts of products when needed, companies will lose profit and increase costs during the entire lifecycle of the product. You need to also simulate your design before committing to equipment purchase, workforce allocation, and process commissioning. This assures that your manufacturing line not only produces what you need today - but will have the flexibility to expand or contract production as market demand dictates. Furthermore, production throughput issues can be very difficult to find without the aid of tools that help identify the problems in both the short term and the long term.

This is where discrete event simulation comes into play. We can use software to predict what could happen based on the production criteria and inputs designated by the designer – and adjust the process or equipment accordingly to meet both current and future production goals.

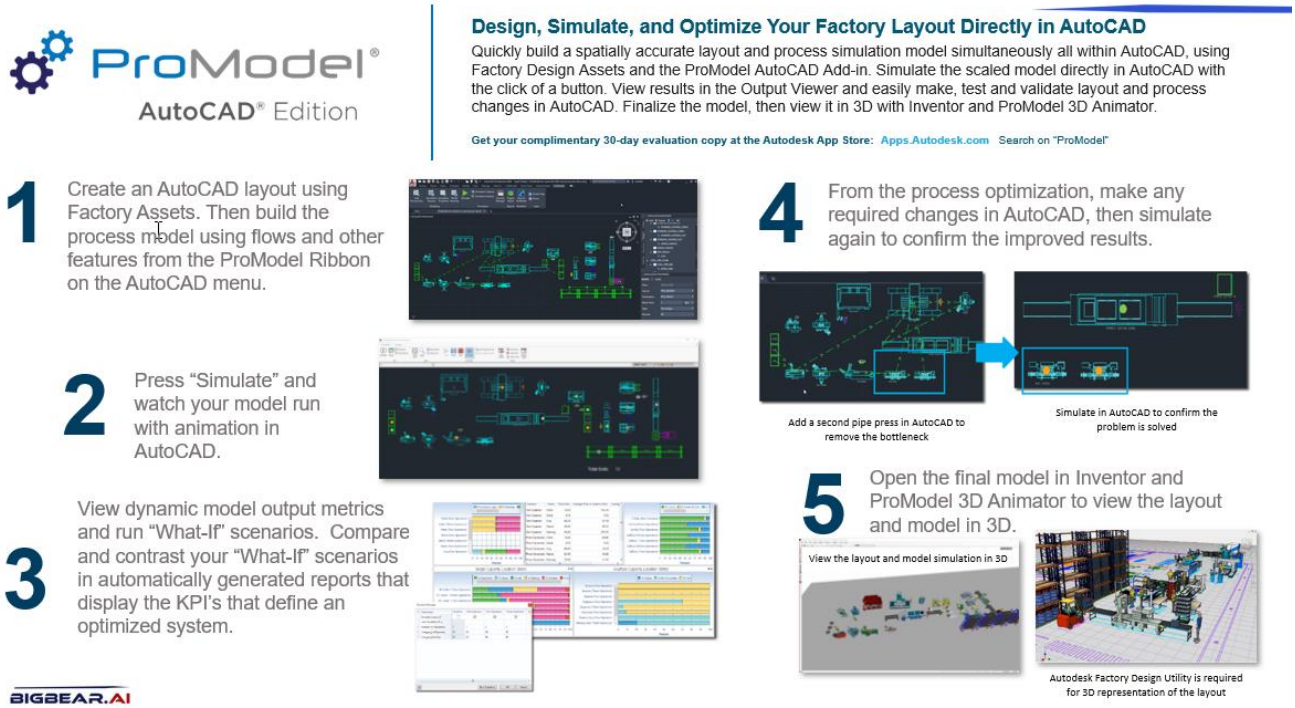
It is not a new process – there have been software tools and methodologies available for many years. The problem with most tools is they are stand alone. If the physical model changes, the discrete model must be updated manually. Many tools out there can read in graphical information from CAD data – but it is not linked. As design process typically follows the 80 / 20 rule – that is, 20% of the time is spent creating the new process, and 80% of the time is spent refining that process to get the best design. Furthermore, this "pigeonholes" the validation process as teams have difficulty keeping the design chain current due to the amounts of non-automated work that is involved. This beneficial process becomes an engineering bottleneck because it is restricted to only a few in the design department. Furthermore, as tools available are high priced, many customers have not implemented it – choosing instead to use tools like spreadsheets to provide answers. However, spreadsheets have some flaws.

1. Typically, the workflow is buried in a spreadsheet that typically only the author can understand – restricting the ability to use it as a team.
2. Excel can't provide variability in process – which means that the answers provided by the Excel workflow are not accurate.
3. Excel can't extrapolate the correct answers over time – which is a critical component for accuracy.
4. Output of answers is typically numbers in a spreadsheet – difficult to interpret by others involved in the process.
5. No link to the CAD model – so as changes are made to the layout footprint – considerations such as distance travelled, different equipment, etc. must be manually updated which is high risk for incorrect answers.

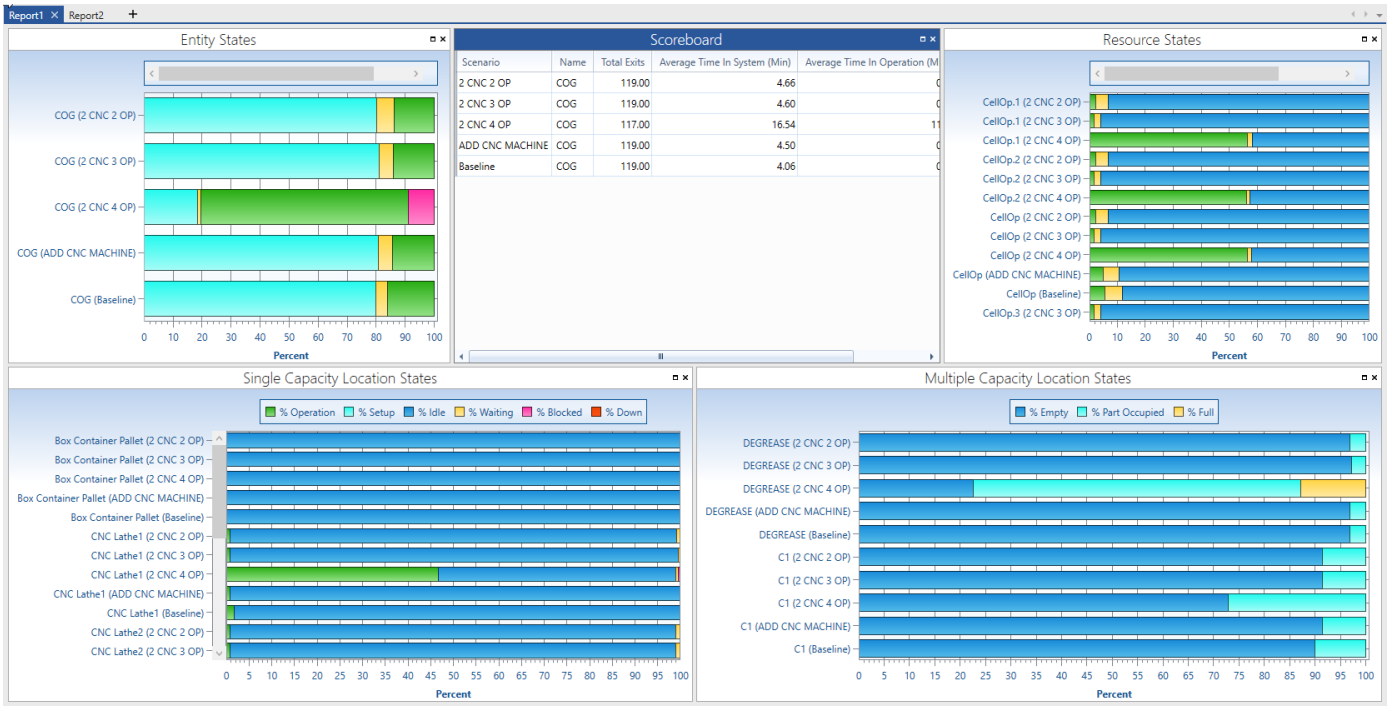
BigBear.AI's product line – the mature ProModel set of tools - provide the benefits of being able to utilize the AutoCAD drawings that are being used today for spatial layout. Furthermore, they provide the discrete event information needed to make good decisions – early; from right inside of the AutoCAD environment that is employed by most facilities layout professionals today. It can be used in literally any situation, be it discrete manufacturing, logistical processing, or personnel flow. This means it can be used by not only manufacturing companies, but also by retail customers, healthcare, and systems integrators alike.

ProModel is a mature technology that is currently employed by thousands of customers globally. The AutoCAD Edition is the newest toolset provided by BigBear.AI.

This easy to implement product requires AutoCAD IST 2020 or newer – and works seamlessly with the Factory Design Utilities provided in the Autodesk Product Design and Manufacturing Suite. This integrates the prediction capability directly into the digital twin model – allowing the layout which in the past could only provide spatial information – the ability to provide on demand throughput information that can be displayed in configurable dashboards as well. The AutoCAD layout also has animated capabilities that can help highlight where problem areas are in the process – giving the user visual cues on where to look for process improvement. Finally, the entire simulation can be displayed and run in an Autodesk Forge environment by using Inventor's 3D capabilities to represent the line in 3D – and see a to scale, 3D animated version of the 2D simulation – with the click of one button. The basic steps of this workflow are outlined in the following graphic.



ProModel also allows users to leverage spreadsheets externally to drive the model behavior. This allows the ability to create user input dashboards to allow the toolset to be leveraged outside of the design department where applicable. The outputs of the reports can be configured to show and highlight the areas where processes can be improved based on your key performance indicators. (KPIs) and help improve overall equipment effectiveness (OEE) for your process.



Since this information is tied to the CAD model, and changes such as distance traveled, or cost are updated as the CAD model changes.

To summarize, ProModel AutoCAD Edition is a new set of tools built upon the ProModel Optimization Suite, a mature platform that has been used by thousands of customers globally for over 30 years to better understand their process capabilities based

on their measurable results. For more information, please visit our website. Or better yet, contact us to have a discussion on your particular needs. Our experienced team and reseller partners can provide an in-depth overview of the capabilities of our products and services as well as better understand your application – as well as providing consulting services where required.